

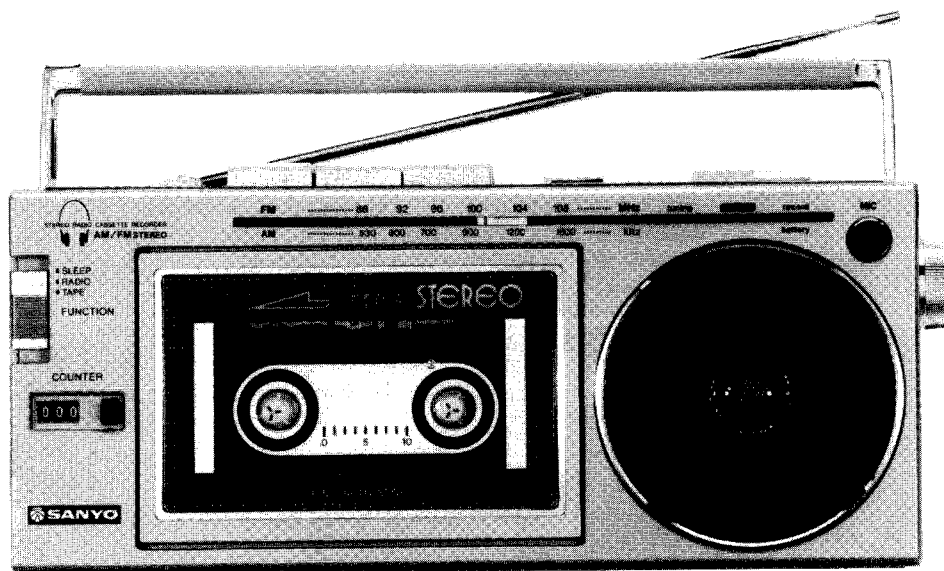
SERVICE MANUAL



MINI AM/FM STEREO RADIO CASSETTE RECORDER

M1990FE

EUROPE



142 360 05

SPECIFICATIONS

Power Source

DC 6V (Mignonzellen, R6 x 4)

Output Power

Speaker 1,400mW (max.)

Headphone (10% dist.) 23mW x 2

Current Consumption (at Vol. min.)

Record mode (Fe₂O₃) 145mA

Playback mode 135mA

Fast Forward/Rewind mode 170mA

Recording System AC Bias

Erasing System Magnet Erasing

Tape Speed 1-7/8ips. $\pm 3\%$

Wow & Flutter 0.35% UNWTD.

Fast Forward/Rewind Time 200sec. (with C-60)

Frequency Response [Speaker]

Fe₂O₃ (Overall) 125Hz ~ 8kHz

Metal (Playback) 125Hz ~ 12kHz

Frequency Response [Headphone]

Fe₂O₃ (Overall) 40Hz ~ 8kHz

Metal (Overall) 40Hz ~ 8kHz

Erase Ratio (Overall)

Fe₂O₃ 60dB

Signal to Noise Ratio (with Fe₂O₃) 46dB

Crosstalk (with Fe₂O₃)

Track to Track 70dB

Channel Separation (with Fe₂O₃) 38dB

Harmonic Distortion (with Fe₂O₃) 4.0%

Terminal Impedance

MIC. 0.3mV/6k Ω

Headphone 32 Ω

Oscillation Frequency 50kHz

Frequency Range

AM 525 ~ 1,605kHz

FM 88 ~ 108MHz

—Specifications subject to change without notice.—

NOTE:

The above mentioned specifications are mainly based on the IHF measurements standard. They can therefore not directly be compared with specifications based on the DIN standard or other standards.

WM-7752

DISASSEMBLY INSTRUCTIONS

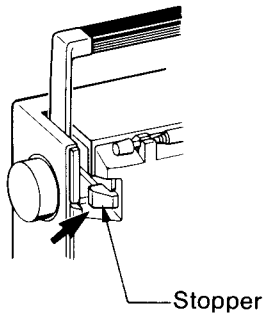
GENERAL REMARKS

Before disassembling the unit, spread a soft rubber mat or a cloth on the workbench. (Do not spread anything which is likely to cause static electricity.) Do not make grease stains and scratches over the unit.

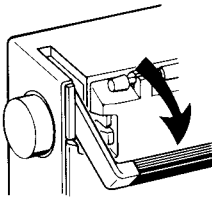
Reassemble the unit noting the kinds of screws and the soldering and arrangement of the leads. Refer to "Wiring Diagram and Exploded Views" for correct assembly.

HANDLE REMOVAL

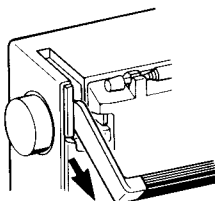
1. Lock the right and left Stoppers by pushing them against the Cabinet Bottom.



2. Push down the Handle, so that it touches the unit body.



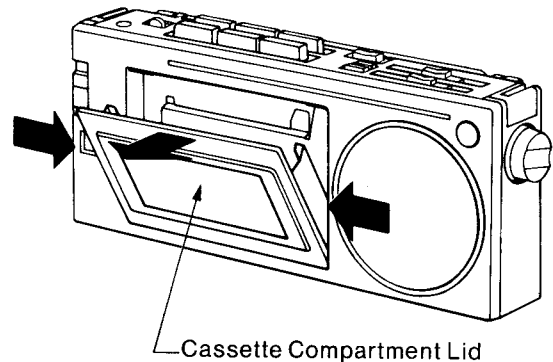
3. Pull one side of the Handle downward about 15mm and do the same for the other side. Then, remove the Handle by pulling the both sides.



4. Reassemble in reverse order.

CASSETTE COMPARTMENT LID REMOVAL

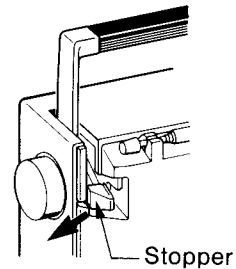
1. Open the cassette compartment lid by pressing the STOP/EJECT button and take out the cassette tape.
2. Unlock the clicks of the lid from the Cabinet Top by pushing both sides of the lid forcibly.



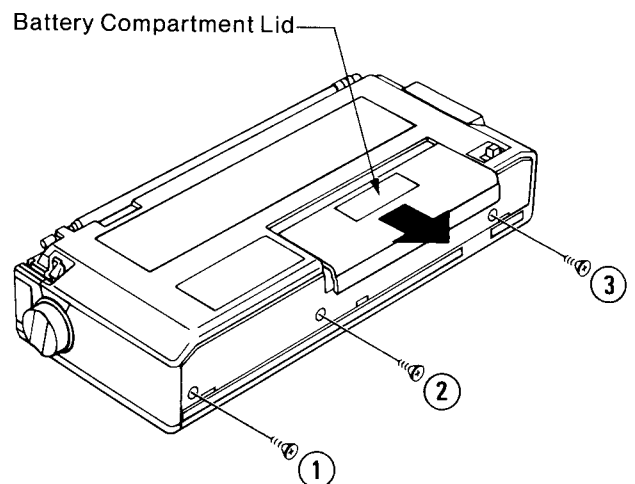
3. Reassemble in reverse order.

CABINET BOTTOM REMOVAL

1. Before removing the Cabinet Bottom, be sure to release the Handle Stoppers from the Cabinet Bottom.

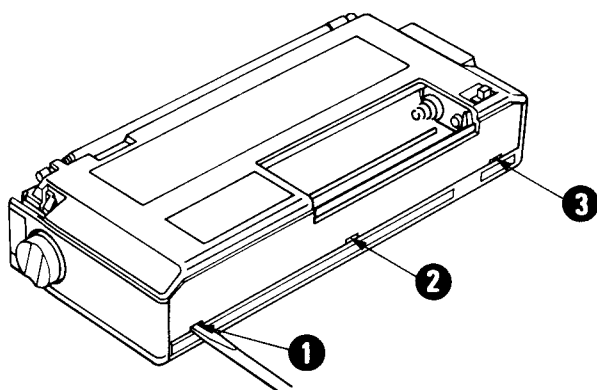
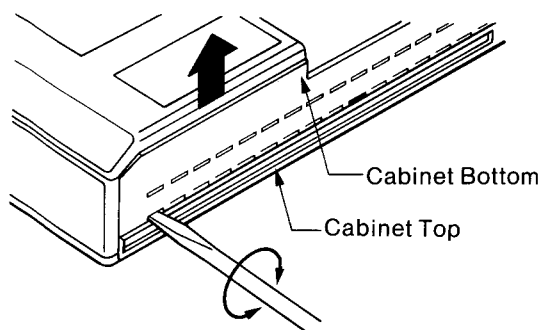


2. Turn over the unit and open the battery compartment lid. Then, take out the four batteries from the compartment and remove the three screws (1 ~ 3) fastening the Cabinet Bottom.



DISASSEMBLY INSTRUCTIONS (Continued)

3. Insert the flat-bladed tip of the screwdriver into a slot on the Cabinet Bottom. Pry the three slots one by one to open the Cabinet.



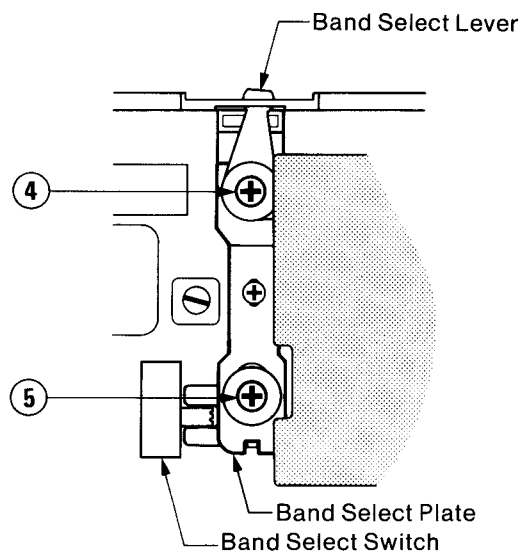
NOTE:

Be careful not to scratch the Cabinet with the screwdriver.

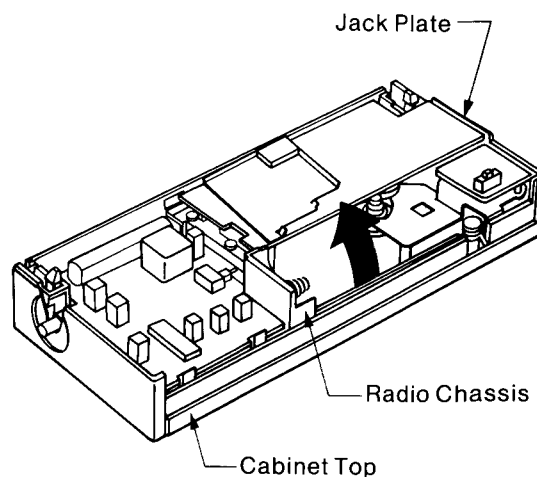
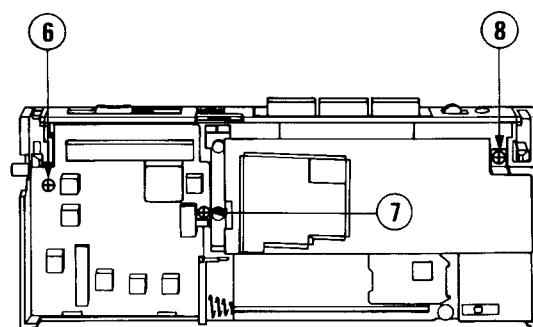
4. Lift the Cabinet Bottom in the direction of the arrow, pull out the Connector of the Rod Antenna from the Radio Tuner P.C.Board, and then, remove the Cabinet Bottom.
5. Reassemble in reverse order.

CABINET TOP REMOVAL

1. Remove the Cabinet Bottom by following its removal instructions and disconnect the two speaker leads.
2. Detach the Tuning Knob, Volume Control Knobs, Band Select Switch Knob, Tape Select Switch Knob, Tone Switch Knob, FM Mode Switch Knob, and the Jack Plate.
3. Remove the two screws (4 and 5) and detach the Band Select Lever and the Band Select Plate.



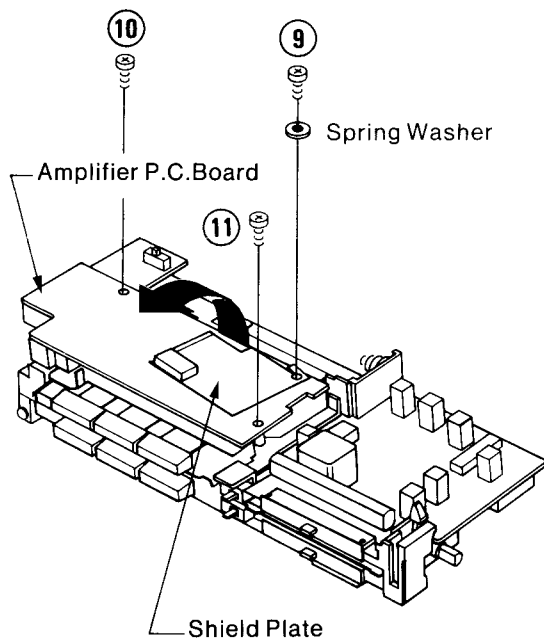
4. Remove the Three red screws (6 ~ 8), lift the Radio Chassis in the direction of the arrow, and then, detach the Cabinet Top, noting the speaker lead.
5. Detach the Function Switch Knob.
NOTE:
After the Cabinet Top has been mounted on the unit, attach the Function Switch Knob
6. Reassemble in reverse order.



DISASSEMBLY INSTRUCTIONS (Continued)

AMPLIFIER P.C.BOARD REMOVAL

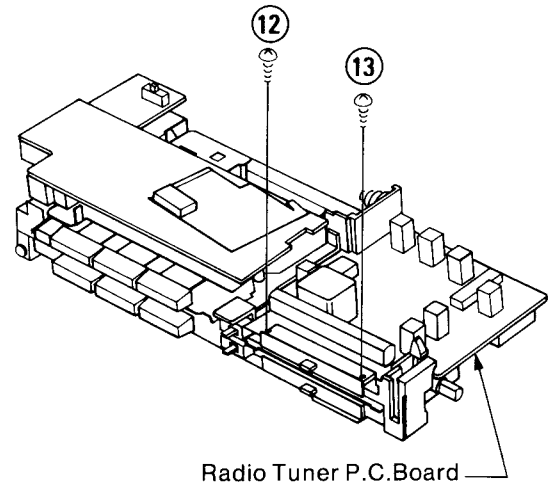
1. Remove the Cabinet Top by following its removal instructions and then disconnect the following leads.
 - * Four leads (brown, red, violet and black) of the Motor Governor P.C.Board.
 - * Two leads (white and orange) of the FM Mode Switch P.C.Board.
2. Remove the screw (9) fastening the Amplifier P.C.Board and the washer. Then, detach the Shield Plate.
3. Remove the two screws (10 and 11) fastening the Amplifier P.C.Board. Then, remove the Switch Bracket from the Headphone Jack P.C.Board by pulling the Amplifier P.C.Board towards the microphone jack.
4. Detach the Amplifier P.C.Board by lifting it in the direction of the arrow, noting the leads.



5. Reassemble in reverse order.

RADIO TUNER P.C.BOARD REMOVAL

1. Remove the Cabinet Top by following its removal instructions.
2. Remove the two screws (12 and 13) fastening the Volume Control and then, the Radio Tuner P.C.Board by lifting it in the direction of the arrow.



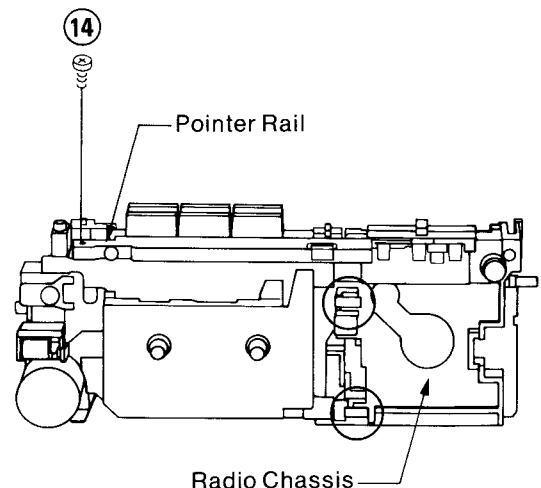
NORE:

Do not turn the Tuning Shaft before the Radio Tuner P.C.Board is reassembled. Securely insert the shaft of the variable capacitor into the Drum when the Radio Tuner P.C.Board is reassembled.

3. Reassemble in reverse order.

RADIO CHASSIS REMOVAL

1. Remove the Cabinet Top by following its removal instructions.
2. Remove the screws (14) fastening the Pointer Rail and then, the Mechanism Chassis from the fixtures on the Radio Chassis, noting the leads.



3. Reassemble in reverse order.

ADJUSTMENTS

GENERAL REMARKS

- Before adjusting the mechanism of the unit, wipe the tape contacting surfaces clean as well as the rubber surfaces of the driving parts with a soft cloth soaked in alcohol. Trouble may occur because of oil and grease stains.
- Keep the belts clean while the adjustments are performed.

EQUIPMENT REQUIRED

- VTVM
- Frequency Counter
- Dummy Load (33Ω)
- DC Constant-voltage Regulator
- Test Tapes
 - * 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
 - * 10kHz Test Tape (Example: TEAC MTT-114) for Head Azimuth Adjustment
 - * 1kHz Test Tape (Example: TEAC MTT-118) for Playback Balance Adjustment
 - * Normal tape for Recording and Playback operations (Example: TDK AC-222)
- Alignment Tool

Before the Electrical Adjustment, set the unit as follows:

- * Function Switch TAPE
- * Tape Select Switch NORMAL
- * Tone Switch HIGH

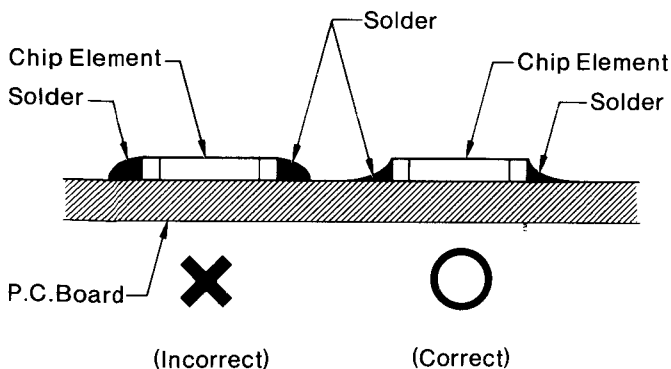
NOTE:

Supply 6.0V DC from the constant-voltage regulator to the external power jack for the adjustment.

NOTES ON HANDLING THE CHIP ELEMENT

Pay due caution to the following items:

1. Do not use the removed chip element again.
2. Use a soldering iron of less than 30W.
 - * The soldering iron should not touch the body of the chip element.
 - * Complete soldering in a short time.
 - * Apply solder to the chip element as illustrated below.



FLYWHEEL THRUST ADJUSTMENT

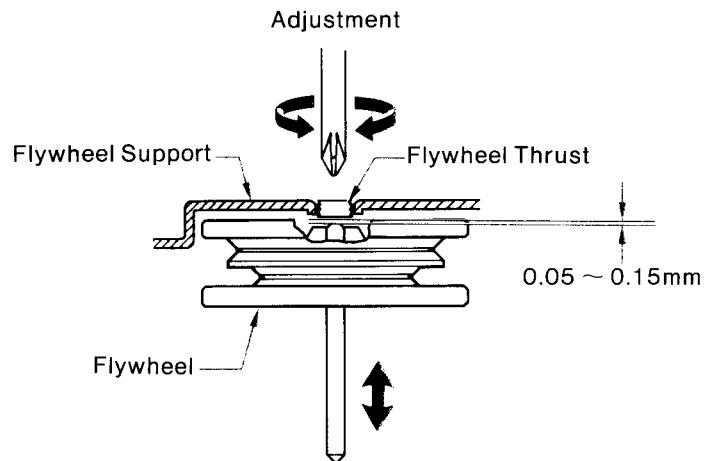
The clearance between the Flywheel Thrust and the Flywheel should be 0.05 ~ 0.15mm with the Chassis turned over.

If necessary, adjust the clearance by the following procedure.

1. While moving the Capstan up and down, slowly turn the Flywheel Thrust clockwise to obtain the clearance of "0" (zero) between the Thrust and Flywheel.

NOTE:

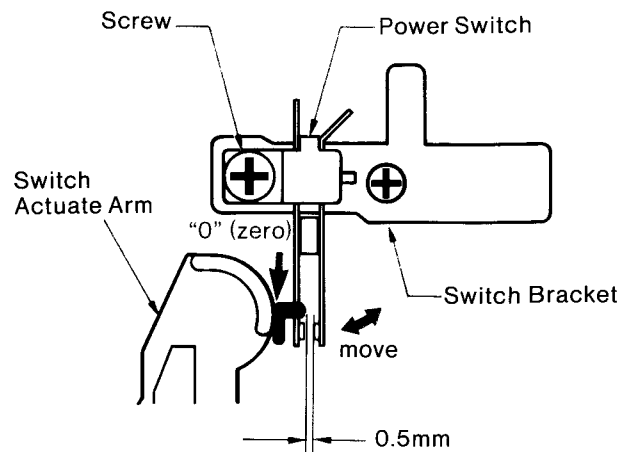
Do not turn the Flywheel Thrust forcibly.



2. Turn the Thrust counter-clockwise by 45° ~ 90° (approx.) from the position.
3. After the adjustment, secure the Thrust with paint or glue.

POWER SWITCH ADJUSTMENT

1. Check to see that the clearance of the switch contacts is about 0.5mm with the Power Switch in contact with the Switch Actuate Arm as illustrated.



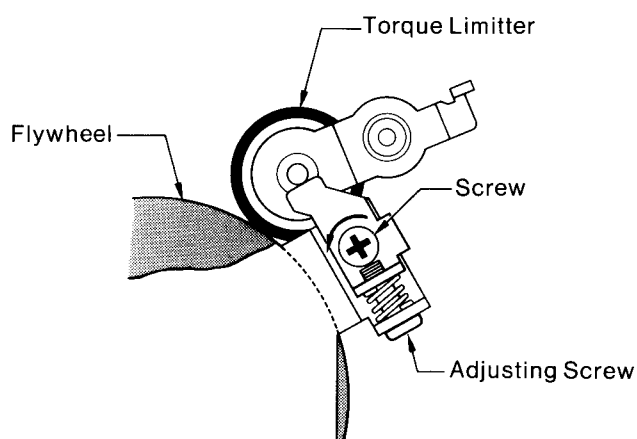
2. If necessary, loosen the screws fastening the power switch and move the switch to the specified position.
3. After the adjustment, tighten the screw and secure the switch with paint or glue.

ADJUSTMENTS (Continued)

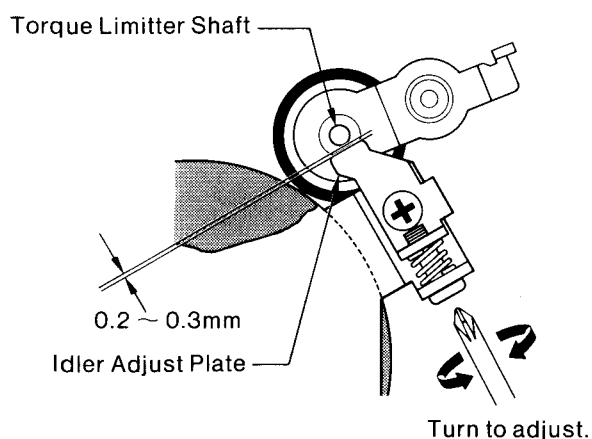
TORQUE LIMITER ADJUSTMENT

This adjustment shall be performed to prevent the torque limiter intrusion of more than required into the Flywheel when the unit is set in the fast forward or rewind mode.

1. Supply 6V DC into the Motor Governor P.C.Board to rotate the Motor. Then, set the unit in the fast forward mode by pressing the F.FWD button.
2. Loosen the screw by turning it about 90° counter-clockwise from the position where the screw is securely tightened as illustrated.



3. Slowly turn the adjusting screw counter-clockwise until the rotation of the Torque Limiter stops while the Flywheel Support is held in place.
4. Turn the adjusting screw 180° ~ 200° clockwise from the above position and confirm that the clearance of 0.2 ~ 0.3mm is obtained between the shaft of the Torque Limiter and the Idler Adjust Plate as illustrated.

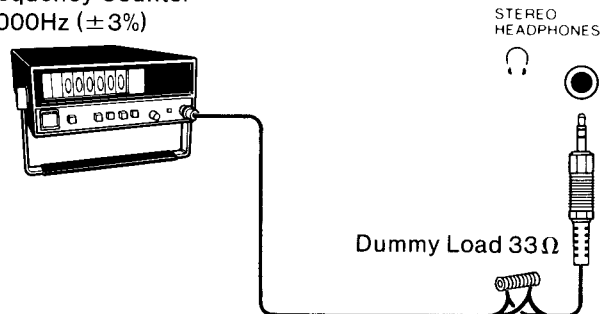


5. After the adjustment, tighten the fastening screw and secure the fastening screw and adjusting screw with paint or glue.

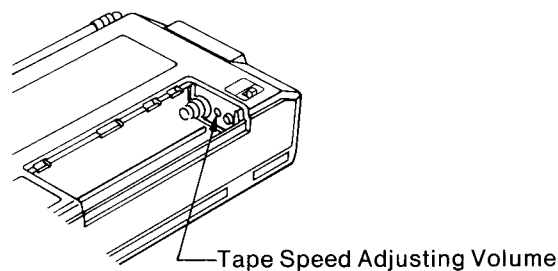
TAPE SPEED ADJUSTMENT

1. Connect the frequency counter to the headphone jack as illustrated and remove the battery compartment lid.

Frequency Counter
3,000Hz ($\pm 3\%$)



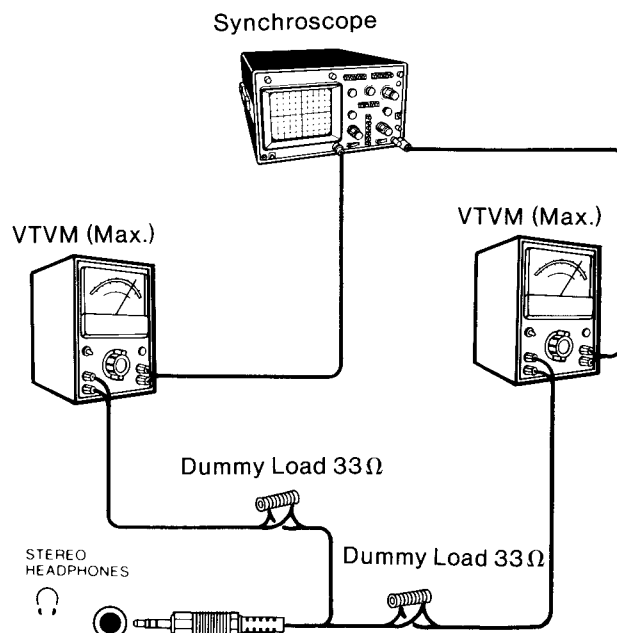
2. Insert a 3kHz test tape (Example: TEAC MTT-111) into the the cassette compartment and play back the test tape.
3. While playing back the test tape, adjust the tape speed by turning the potentiometer (P801) on the Motor Governor P.C.Board until the frequency counter reads 3,000Hz ($\pm 3\%$).



HEAD AZIMUTH ADJUSTMENT

1. Connect the two VTVMs and the dualtrace synchroscope to the headphone jack as illustrated. Then, set the dualtrace synchroscope as follows:

- * MODE CHOP (chopped)
- * SOURCE INT (internal), CH1 or CH2
- * SWEEP MODE AUTO (automatic)

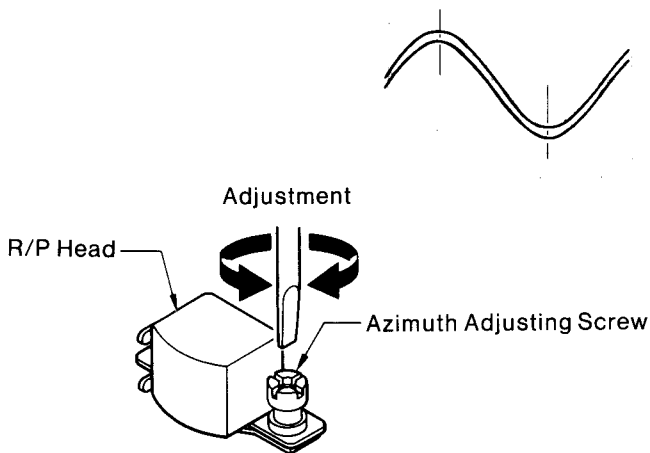


ADJUSTMENTS (Continued)

NOTE:

Adjust the field on the synchroscope with the VOLT. ADJ. and TIME ADJ.

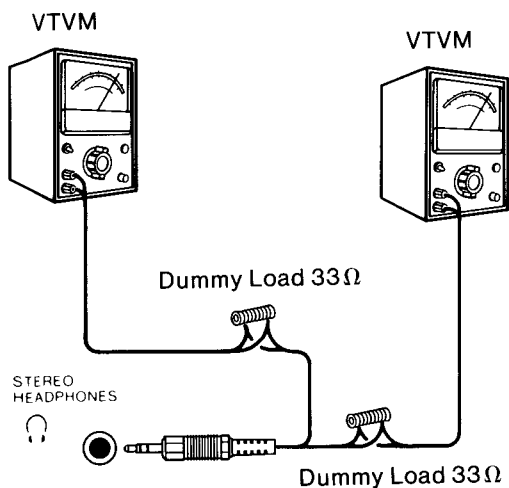
- Insert the 10kHz test tape (Example: TEAC MTT-114) into the cassette compartment. While playing back the test tape, turn the azimuth adjusting screw until the wave forms of the right and left channels are superimposed and set to optimum at the maximum reading on the VTVM.



- After the adjustment, secure the adjusting screw with paint or glue.

PLAYBACK BALANCE ADJUSTMENT

- Connect the two VTVMs to the headphone jack as illustrated and insert a 1kHz test tape (Example: TEAC MTT-118) into the cassette compartment.



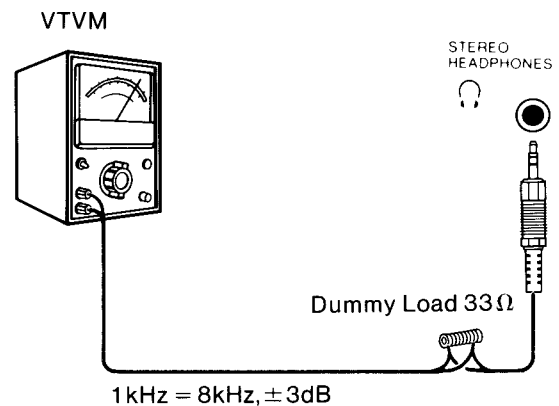
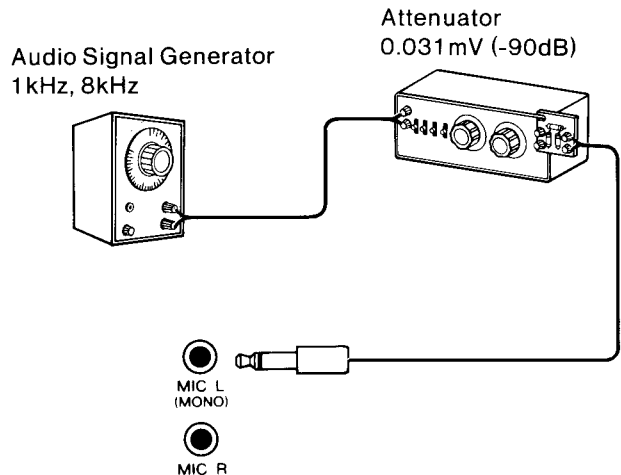
- While playing back the test tape, check that the left channel output is identical to the right channel output on the VTVMs.

If necessary, turn the potentiometer (P202) until the right channel output becomes equivalent to the left channel output.

RECORDING BIAS ADJUSTMENT

LEFT CHANNEL

- Connect the audio signal generator and the attenuator to the left channel microphone jack, and the VTVM to the left channel output terminal of the headphone jack as illustrated.



- Insert a normal tape (Example: TDK AC-222) into the cassette compartment and alternately record the 1kHz and 8kHz signals from the audio signal generator at 0.031mV (-90dB) on the tape several times.
- While playing back the recorded signals, check that the 8kHz signal output is identical to the 1kHz signal output or the deviation is $\pm 3\text{dB}$ on the VTVM.
- If necessary, adjust the output by turning the potentiometer (P101) and re-check the output of each signal by playing back the signals after recording operation of the signals.
- Repeat the above adjustment until the specified output is obtained.

RIGHT CHANNEL

Connect the audio signal generator and the attenuator to the right channel microphone jack, and the VTVM to the right channel terminal of the headphone jack. Then, adjust the potentiometer (P201) for the right channel by following the same procedure as in LEFT CHANNEL.

TUNER ADJUSTMENT

EQUIPMENT REQUIRED

- AM Standard Signal Generator
- FM Standard Signal Generator
- Generator Scope
- Stereo Signal Generator
- Loop Antenna
- Dummy Antenna (75Ω, unbalanced type) for FM
- VTVM
- Frequency Counter
- Distortion Meter

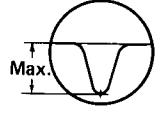
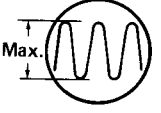
NOTE:

Use an alignment tool with plastic grip for all adjustments.

- Oscilloscope
- Dummy Load (33Ω)
- Alignment Tool
- Before performing the adjustment, set the unit as follows:
 - * Function Switch RADIO
 - * FM Mode Switch MONO
 - * Tone Switch HIGH
 - * Volume Control Center

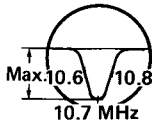
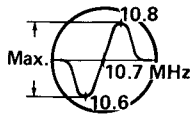
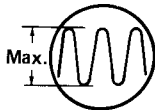
AM ALIGNMENT

Standard Test Frequency 400Hz and Modulation 30% at AM

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of IF for AM	Connect standard loop antenna to output terminal of gene-scope. Place loop antenna 60cm away from bar antenna.	Connect input terminal of gene-scope to detector output terminals. (TP9 or TP11, and TP10)	455kHz	Low End	T3	Obtain symmetrical curve and maximum amplitude. 
2	Calibration of Tuning Range	Connect standard loop antenna to output of signal generator. Place loop antenna 60cm away from bar antenna.	Connect VTVM with 33Ω dummy load and oscilloscope to Ext. Speaker terminal.	510kHz		T5	Obtain sine-wave of 400Hz and maximum amplitude. 
3	Tuning Range			1,670kHz	High End	TC4 (PVC)	
4	Adjustment of Tracking			600kHz	600kHz	L3 (bar ant. coil)	
5	Tracking			1,400kHz	1,400kHz	TC3 (PVC)	
6	Repeat the above adjustment.						

FM ALIGNMENT

Standard test frequency 400Hz and deviation 22.5kHz

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks	
		INPUT	OUTPUT					
1	Calibration of IF	Place output of gene-scope on Trap Coil (T1).	Connect input terminal of gene-scope to detector output terminals. (TP9 or TP11, and TP10)	10.7MHz	Low End	Turn T3(blue core) fully counter-clockwise T2.	Obtain symmetrical curve and maximum amplitude. 	
2						T3 (blue core)	Obtain S curve and maximum amplitude. 	
3	Calibration of Tuning Range	Connect signal generator to antenna terminals (TP1 and TP2) through dummy antenna (75Ω, unbalanced type).	Connect VTVM with 33Ω dummy load and oscilloscope to Ext. Speaker terminal.	87.2MHz	High End	L2	Obtain sine-curve and maximum amplitude. 	
4				109.0MHz		TC2 (PVC)		
5	Adjustment of Tracking			90MHz		90MHz		L1
6				106MHz		106MHz		TC1 (PVC)
7	Repeat the above adjustment.							

TUNER ADJUSTMENT (Continued)

Before performing the adjustment, set the unit as follows:

- Function Select Switch RADIO
- Band Select Switch FM
- FM Mode Switch STEREO
- Tone Switch HIGH
- Volume Control Center

19kHz (V.C.O.) ADJUSTMENT

1. Connect the Frequency counter to the twelfth pin in IC2 (LA3361).
2. Adjust the potentiometer (P1) until the oscillation frequency of IC2 becomes 19kHz (± 20 Hz).

CHANNEL SEPARATION ADJUSTMENT

1. Connect the stereo signal generator and the FM standard signal generator through the 75 Ω dummy antenna (unbalanced type) to the antenna terminals (TP1 and TP2) on the Radio Tuner P.C.Board .
2. Connect the VTVM with 33 Ω dummy load distortion meter, and oscilloscope to the left channel terminal of the headphone jack.

3. Adjust the input measuring instruments as follows:

- Stereo Signal Generator
 - * Pilot Signal 7.5kHz dev. (modulation 10%)
 - * Stereo Signal 67.5kHz dev. for main signal (modulation 90%)
 - * Modulation Frequency 400Hz
- FM Standard Signal Generator
 - * Signal Generator Frequency 98MHz
 - * Signal Generator Output 66dB μ

4. Set the tuning frequency to 98MHz.
5. Adjust the potentiometer (P2) by following the Chart below.

NOTE:

Use an alignment tool with plastic grip for all adjustments.

Step	Alignment	Connections		Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT			
1	FM Stereo Signal Separation	Pilot (19kHz) and Sub channel signals of Stereo SG —ON	Connect measuring instruments to L channel Ext. Speaker terminal	98MHz	Dial of FM SG	Maximize amplitude of Oscilloscope and VTVM reading with minimum distortion.
2		R channel and Pilot signal of Stereo SG —ON			P2	Minimize amplitude of Oscilloscope and VTVM reading.
3	Repeat the above adjustments.					

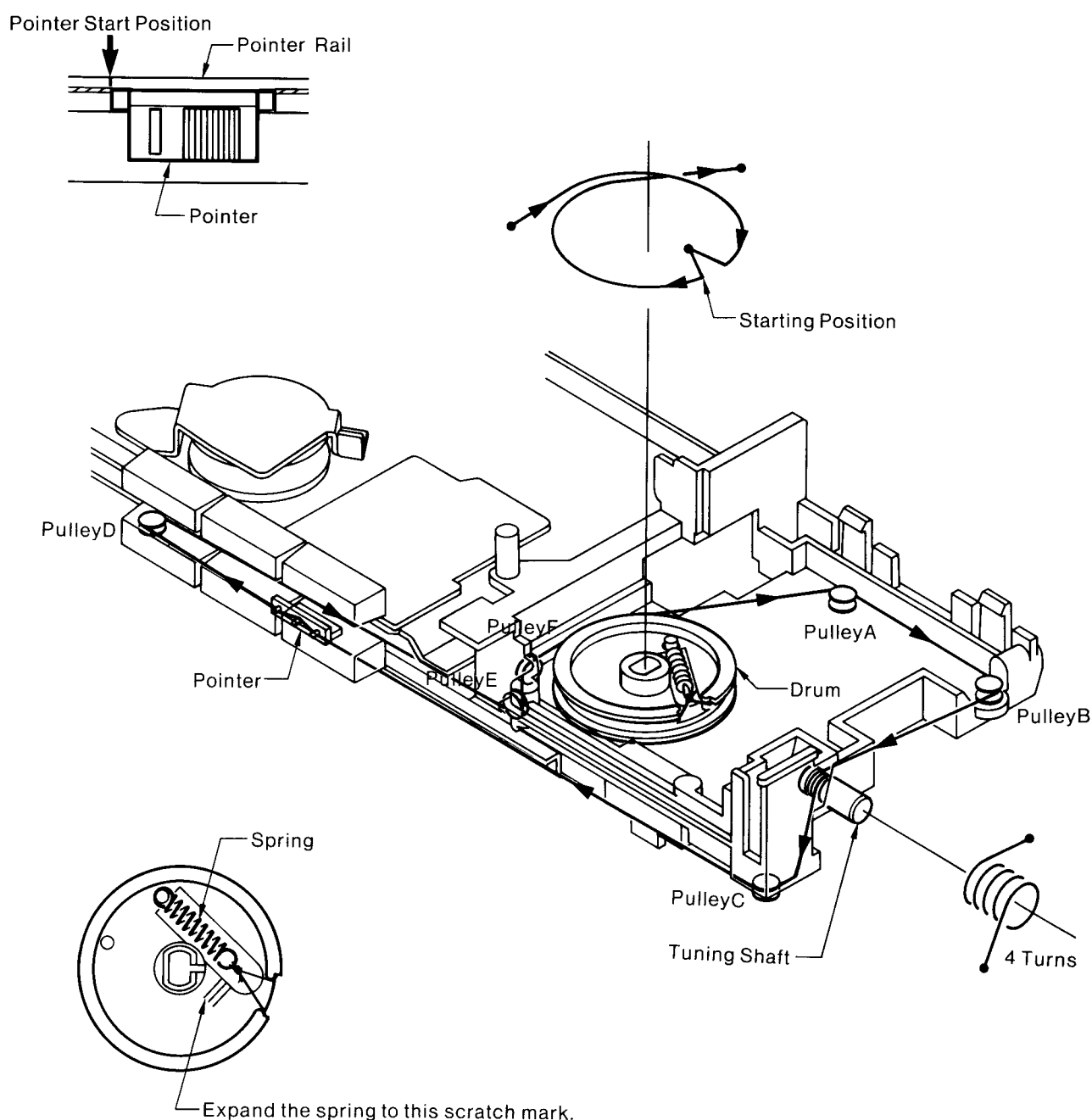
6. Connect the measuring instruments to the right channel terminal of the headphone jack and perform the adjustment by following the Chart below.

Step	Alignment	Connections		Tuning Dial Setting	Adjustment	Remarks
		INPUT	OUTPUT			
1	FM Stereo Signal Separation	Pilot (19kHz) and Sub channel signals of Stereo SG —ON	Connect measuring instruments to R channel Ext. Speaker terminal	98MHz	Dial of FM SG	Maximize amplitude of Oscilloscope and VTVM reading with minimum distortion.
2		L channel and Pilot signal of Stereo SG —ON			P2	Minimize amplitude of Oscilloscope and VTVM reading.
3	Repeat the above adjustments.					

7. Repeatedly perform the adjustments in **Items 5 and 6** to minimize the signal leakage for both right and left channels. Then, reduce the difference between each channel separation by adjusting the potentiometer (P2).

DIAL CORD STRINGING

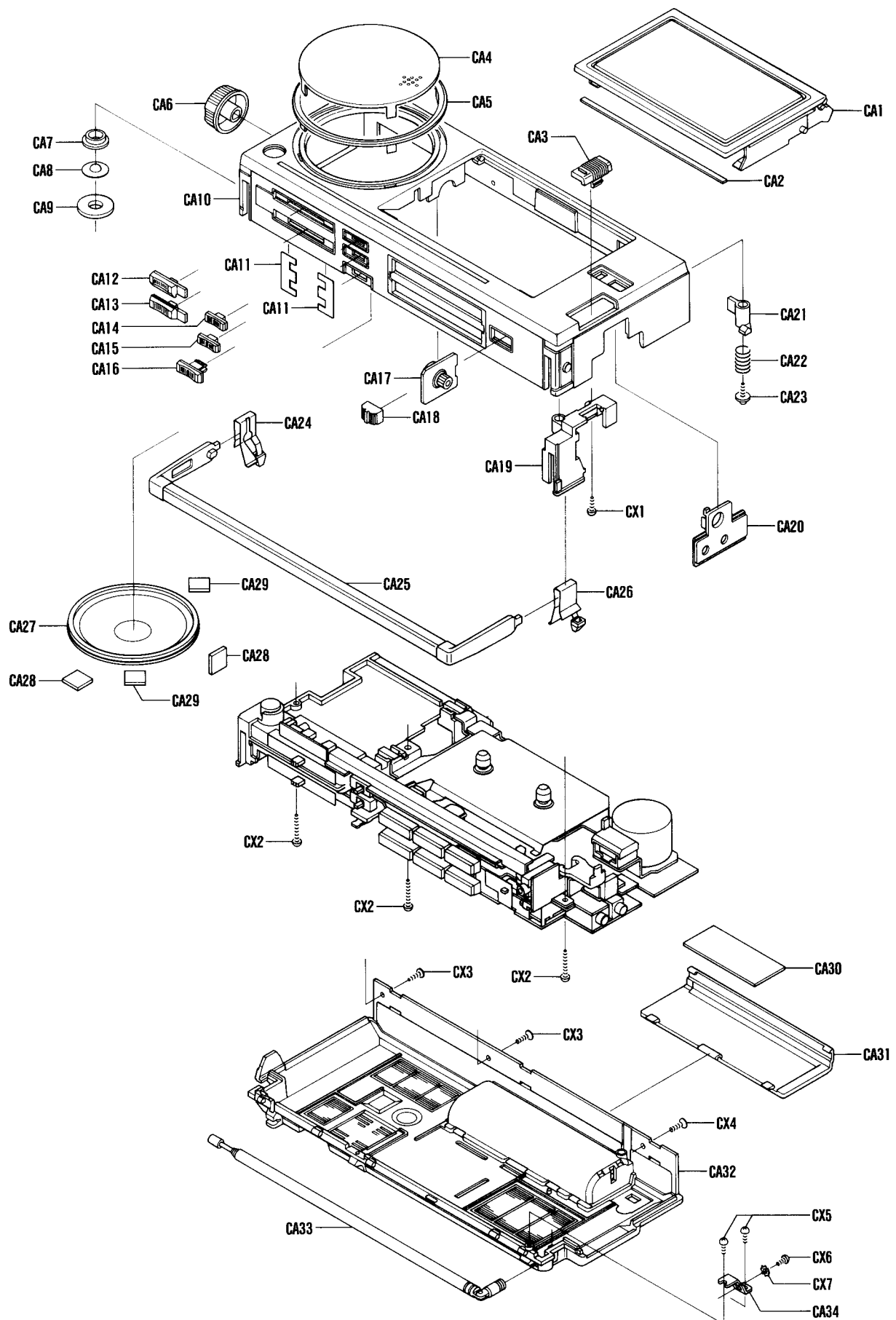
1. Mount the Drum on the Radio Chassis as illustrated.
2. Tie the dial cord of length 800mm (effective length: 770mm) and diameter $\phi 0.3$ to the spring and hook the spring to the illustrated position of the drum.
3. Engage the dial cord as illustrated in the following order.
Drum $\rightarrow$ Pulley A $\rightarrow$ Pulley B $\rightarrow$ Tuning Shaft (4 turns) $\rightarrow$ Pulley C $\rightarrow$ Pulley D $\rightarrow$ Pulley E $\rightarrow$ Pulley F $\rightarrow$ Drum $\rightarrow$ Spring
4. Hook the dial cord to the spring and tie the cord where the spring tip extends to the scratch mark as illustrated.
5. Secure the place where the spring is hooked to the drum and the knot in the dial cord with paint or glue.
6. Turn the shaft of the variable capacitor counter-clockwise until it stops. Then, fit the shaft to the drum and mount the Radio Tuner P.C.Board on the Radio Chassis.
7. Attach the pointer to the dial cord and fit the pointer to the starting position mark on the pointer rail as illustrated. Turn the tuning shaft idly counter-clockwise and confirm that the pointer is correctly positioned.



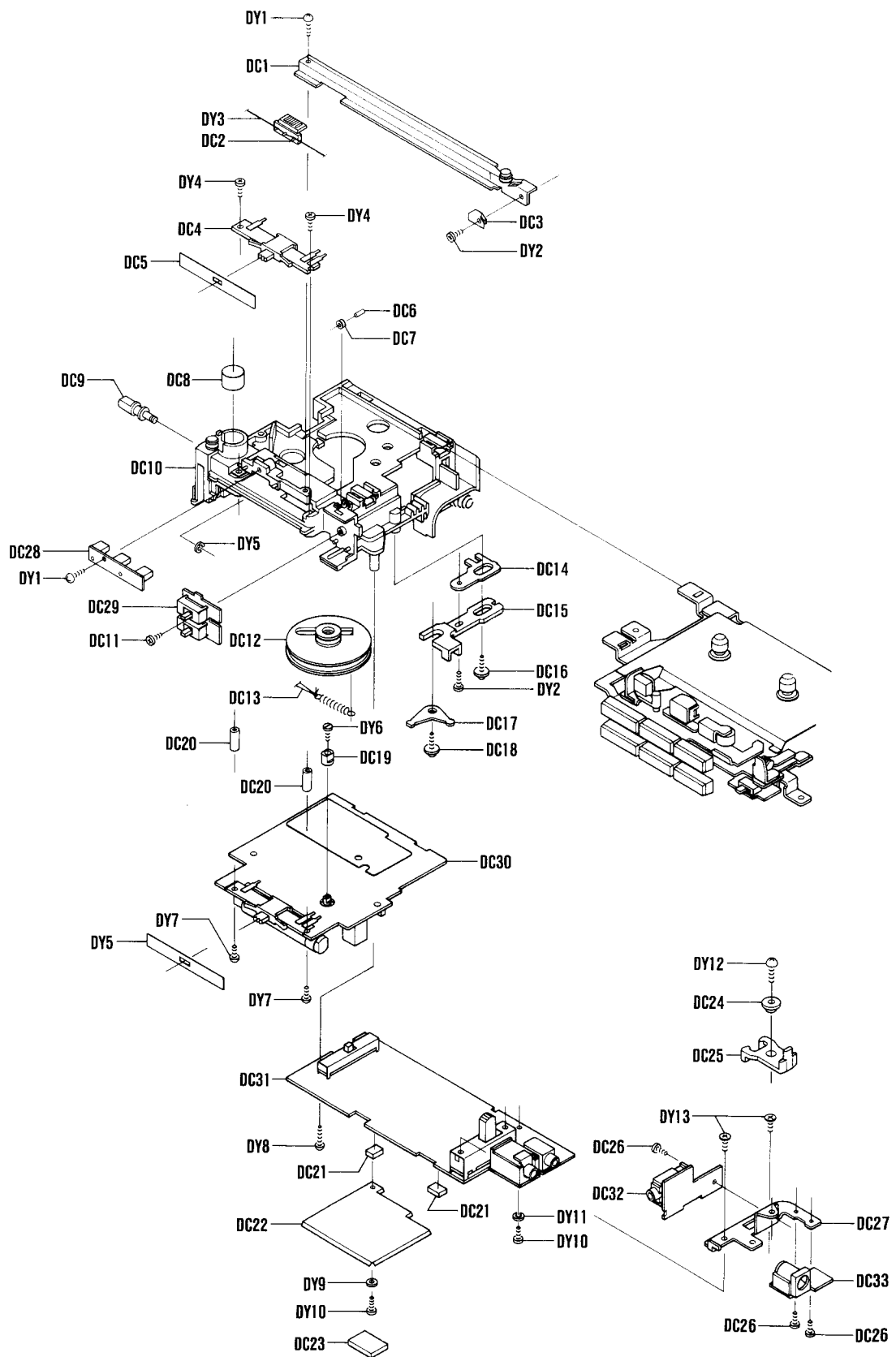
PARTS LIST

Ref. No.	Parts No.	Description	Q'ty	Ref. No.	Parts No.	Description	Q'ty
PACKAGE				RADIO CHASSIS			
141	6 1419 60203	Individual Carton	1	DC1	141 0 5289 01000	Pointer Rail Assy	1
141	6 1449 78300	Styrofoam Case, Left	1	DC2	141 2 5119 06300	Pointer	1
141	6 1449 78400	Styrofoam Case, Right	1	DC3	141 2 8539 45500	Spring, Earth	1
141	6 4559 00100	Serial No. Sheet	1	DC4	4 2229 73500	Volume Control (A-20k Ω /Right) [VR2]	1
141	6 2519 14190	Poly Cover	1	DC5	141 2 2419 24604	Veil, VOLUME	2
141	6 2519 13090	Poly Cover	1	DC6	141 2 7529 90700	Pin	1
ACCESSORIES				DC7	141 2 8259 07800	Roller	1
4	1529 70261	Headphone	1	DC8	4 1539 70660	Microphone [BM1]	1
4	1919 71570	AC Adaptor, 6CV220E	1	DC9	141 2 7519 53400	Tuning Shaft	1
4	2419 71002	Cassette	1	DC10	141 0 3119 20501	Radio Chassis Assy	1
141	0 1769 00700	Shoulder Belt Assy	1	DC11	141 2 4219 21800	Screw	1
141	2 1819 13302	Carrying Case	1	DC12	141 2 5389 03100	Drum	1
142	6 4119 31522	Instruction Manual	1	DC13	141 2 8519 70200	Spring, Slide Base	1
CABINET				DC14	141 2 7319 50600	Band Select Plate	1
4	2359 70990	RT Pin Socket	1	DC15	141 2 7319 50700	Band Select Plate	1
CA1	141 0 1249 20401	Cassette Lid Assy	1	DC16	141 2 4219 12100	Screw w/Washer	1
CA2	141 2 2449 41500	Cushion, Cassette Lid	1	DC17	141 2 6219 03300	Band Select Lever	1
CA3	141 2 1649 14700	Knob, Function	1	DC18	141 2 4219 06300	Screw	1
CA4	141 2 1519 29002	Speaker Grille	1	DC19	141 2 3769 11600	Spacer, PVC	1
CA5	141 2 1559 05600	Speaker Ring	1	DC20	141 2 7539 07500	Post, Volume	2
CA6	141 2 1639 40400	Tuning Knob	1	DC21	141 2 4469 11901	Damper	2
CA7	141 2 1559 04500	Ring, Mike	1	DC22	141 2 3229 32301	Shield Plate	1
CA8	141 2 2449 35800	Net, Mike	1	DC23	141 2 4469 17900	Cushion, Cassette	1
CA9	141 2 4469 35400	Cushion, Mike	1	DC24	141 2 3529 08600	Spacer, Record Lock	1
CA10	141 0 1119 81101	Cabinet Top Assy	1	DC25	141 2 7439 25000	Lever, Function	1
CA11	141 2 2449 37900	Sheet, Volume	2	DC26	141 2 4219 08900	Screw	3
CA12	141 2 1649 16100	Volume Knob, Right	1	DC27	141 2 3659 17400	Bracket, Function	1
CA13	141 2 1649 16000	Volume Knob, Left	1	DC28	4 2029 71780	LED Indicator P.C.B. Assy (See PCB4)	1
CA14	141 2 1649 16300	Tone Knob	1	DC29	4 2319 75170	Switch P.C.B. Assy (See PCB5)	1
CA15	141 2 1649 16400	Tape Select Knob	1	DC30	4 1259 71611	Radio Tuner P.C.B. Assy (See PCB1)	1
CA16	141 2 1649 15900	Band Select Knob	1	DC31	4 1329 77450	Amplifier P.C.B. Assy (See PCB2)	1
CA17	141 0 5519 08400	Eject Gear Assy	1	DC32	4 2359 75490	Headphone Jack P.C.B. Assy (See PCB7)	1
CA18	141 2 1649 16500	Switch Knob	1	DC33	4 2359 75481	Ext. Power Jack P.C.B. Assy (See PCB8)	1
CA19	141 2 2719 16901	Handle Holder	1	DY1	102 3 1302 00511	Screw, Pan Hd. Tapping-1 +M2.0x5	2
CA20	141 2 3679 30601	Jack Plate	1	DY2	101 3 1302 00411	Screw, Pan Hd. +M2.0x4	2
CA21	141 2 7319 48400	Cam	1	DY3	624 3 0908 00000	String, ϕ 0.4	1
CA22	141 2 8559 00400	Spring, Cam	1	DY4	101 3 1702 00511	Screw, Bind Hd. +M2.0x5	2
CA23	141 2 4219 12100	Screw w/Washer	1	DY5	112 3 1302 00040	E Ring M2.0	1
CA24	141 0 8539 01204	Handle Spring R Assy	1	DY6	101 3 2501 70413	Screw, Cylinder Hd. -M1.7x4	1
CA25	141 0 1719 09004	Handle Assy	1	DY7	101 3 1302 00423	Screw, Pan Hd. +M2.0x4	2
CA26	141 0 8539 01104	Handle Spring L Assy	1	DY8	103 3 1302 00811	Screw, Pan Hd. Tapping-2 +M2.0x8	1
CA27	4 1519 70981	Speaker (3.2 Ω) [SP1]	1	DY9	110 3 1102 00023	Sm. Round Washer M2.0	1
CA28	141 2 4469 37800	Cushion	2	DY10	128 3 1317 06013	PI Screw-3, Pan Hd. +M1.7x1.6	2
CA29	141 2 4469 37700	Cushion	2	DY11	110 3 2101 70013	Spring Washer-2 M1.7	1
CA30	141 2 4469 29800	Cushion	1	DY12	101 3 1302 60611	Screw, Pan Hd. +M2.6x6	1
CA31	141 2 1339 24404	Battery Lid	1	DY13	101 3 1202 60411	Screw, Flat Hd. +M2.6x4	2
CA32	141 0 1119 81204	Cabinet Bottom Assy	1	NOTES:			
CA33	4 2449 70201	Rod Antenna	1	1. Parts order must contain Model Number, Part Number and Description.			
CA34	141 2 3849 03900	Bracket, Antenna	1	2. Ordering quantity of screws and resistors must be multiple of 10 pcs.			
CX1	103 3 1302 60811	Screw, Pan Hd. Tapping-2 +M2.6x8	1				
CX2	103 3 1302 62019	Screw, Pan Hd. Tapping-2 +M2.6x20	3				
CX3	101 3 1202 60814	Screw, Flat Hd. +M2.6x8	2				
CX4	103 3 1202 61014	Screw, Flat Hd. Tapping-2 +M2.6x10	1				
CX5	103 3 1302 00611	Screw, Pan Hd. Tapping-2 +M2.0x6	2				
CX6	101 3 1302 60611	Screw, Pan Hd. +M2.6x6	1				
CX7	110 3 3202 60082	Ext. Star Washer M2.6	1				

CABINET EXPLODED VIEW



RADIO CHASSIS EXPLODED VIEW (Continued)



MECHANISM PARTS LIST

Ref. No.	Parts No.	Description	Q'ty	Ref. No.	Parts No.	Description	Q'ty
MECHANISM				MC64	141 2 7319 47500	Shut Off Rack Lever	1
MC1	141 0 3119 19701	Chassis Assy	1	MC65	141 2 3529 30600	Spacer, Rack Lever	1
MC2	141 0 7419 32100	Completed Pause Lever	1	MC66	141 2 3529 30700	Spacer, Rack Lever	1
MC3	141 2 8519 93800	Spring, Slide Base	1	MC67	141 2 4219 24900	Screw, Flat Hd. +M1.4x4.0	2
MC4	141 0 7419 32200	Completed Slide Base	1	MC68	141 0 5519 08200	Shut Off Gear Assy	1
MC5	141 2 8219 29800	Tape Guide	1	MC69	141 2 7319 47400	Shut Off Link Lever	1
MC6	141 2 8529 04600	Spring, Erase Head	1	MC70	141 2 7439 23900	Rack Lever ACT Arm	1
MC7	141 0 7439 10300	Erase Head Arm Assy	1	MC71	141 2 8549 07700	Spring, Shut Off Link	1
MC8	141 2 8539 38500	Spring, Head	1	MC72	141 0 5319 05800	Friction Assy	1
MC9	141 2 3529 18102	Spacer, Head	1	MC73	141 2 4419 15400	Felt, Friction Sensor	1
MC10	4 2429 72010	R/P Head	1	MC74	141 2 7439 24900	Sensor ACT Plate	1
MC11	141 2 4729 07700	Lug	1	MC75	141 2 8559 01500	Spring, Friction Sens	1
MC12	141 2 4219 03000	Screw +M2.0x3.0	1	MC76	141 2 6619 03300	Counter Pulley	1
MC13	141 2 4179 02200	Nut, Head	1	MC77	141 2 8549 05400	Spring, Shut Sensor	1
MC14	141 2 8529 06300	Spring, Pinch Roller	1	MC78	141 2 3529 30400	Spacer, Sensor Plate	1
MC15	141 0 5419 03400	Pinch Roller Assy	1	MC79	141 2 7319 48300	Shut Off Sensor	1
MC16	141 2 1219 18101	Chassis Panel	1	MC80	141 2 3529 30200	Spacer, Slide Lever	3
MC17	141 2 4219 24800	Screw, Pan Hd. +M1.7x2.0	7	MC81	141 2 7319 47300	Slide Plate	1
MC18	141 2 3529 26900	Spacer	1	MC82	141 2 4539 26200	Washer	2
MC19	141 2 7439 24200	Take-up Actuator	1	MC83	141 2 5519 40200	Idler Pulley	1
MC20	141 0 3169 06800	Eject Bracket Assy	1	MC84	141 2 4539 23900	Washer	2
MC21	141 2 3529 30000	Spacer, Pause Lever	1	MC85	141 2 5519 40300	Idler Gear	1
MC22	141 2 4219 24300	Screw +M1.4x2.0	5	MC86	141 2 7439 24000	Pause Arm	1
MC23	141 2 2419 25500	Beil, Switch	1	MC87	141 0 3519 19700	Shut Off Plate Assy	1
MC24	141 2 3679 30500	Switch Bracket	1	MC88	141 2 3529 27300	Spacer, Support Plate	1
MC25	141 2 8549 08000	Spring, Eject ACT	1	MC89	141 0 7419 32300	Completed Stop Lever	1
MC26	141 0 7319 22700	Eject ACT Arm Assy	1	MC90	141 0 7419 32400	Rewind Lever Assy	1
MC27	141 2 7319 47800	Lever, Shut Off ACT	1	MC91	141 0 7419 32500	FF Lever Assy	1
MC28	141 2 7319 47600	Lever, Stop/Eject ACT	1	MC92	141 0 8419 04500	Record Lever Assy	1
MC29	141 2 8549 12200	Spring, Lever	1	MC93	141 2 3519 56000	Chassis Bracket	1
MC30	141 2 3529 29900	Spacer, Lever	2	MC94	141 2 8549 08100	Spring, Rewind Lever	2
MC31	141 2 4539 09400	Washer	2	MC95	141 2 8519 94300	Spring, Lock Plate	1
MC32	141 0 5219 07800	Flywheel Assy	1	MC96	141 0 3519 19800	Support Plate Assy	1
MC33	141 2 5649 17700	Drive Belt	1	MC97	141 0 7319 22900	Base Lock Plate Assy	1
MC34	141 2 5649 17400	Take-up Belt	1	MC98	141 2 8549 05500	Spring, Stop Lever	1
MC35	141 2 3519 54700	Flywheel Support	1	MC99	141 2 4729 01901	Lug	1
MC36	141 2 4469 28700	Flywheel Thrust	1	MC100	141 2 3529 30100	Spacer, Record Lever	1
MC37	141 2 4729 01902	Lug	1	MC101	141 2 3529 30500	Spacer, Record Support	1
MC38	141 2 8559 01400	Spring, Idler Adjust	1	MC102	141 2 8549 05100	Spring, Base	1
MC39	141 2 3519 56600	Plate, Idler Adjust	1	MC103	141 2 3659 17600	Switch Bracket	1
MC40	141 0 3789 01401	Motor Bracket Assy	1	MC104	4 2319 74570	Leaf Switch (Power) [S4]	1
MC41	141 2 5649 17600	Counter Belt	1	MC105	141 2 8429 05900	Record Lock Plate	1
MC42	141 2 8119 09300	Counter	1	MC106	141 2 7319 47700	ACT Lever Plate	1
MC43	141 2 4459 15900	Cushion, Motor	2	MC107	141 2 8429 06000	Record Interlock Plate	1
MC44	141 2 4219 11400	Screw	2	MC108	141 2 4569 05700	Washer	2
MC45	141 2 2449 38800	Beil, Switch	1	MC109	141 2 8549 07600	Spring, Record Lock	1
MC46	141 2 1649 14900	Knob, Switch	1	MC110	141 2 8549 09400	Spring, Record Interlock	1
MC47	141 0 7439 10200	Intercept Arm Assy	1	MC111	141 2 7439 27300	Switch ACT Arm	1
MC48	141 0 7439 10000	Shut off Arm Assy	1	MC112	141 0 3169 06900	Reel Plate Assy	1
MC49	141 2 4539 17500	Washer	12	MC113	141 2 5519 40600	Planetary Gear	1
MC50	141 0 5559 06200	Idler Base Assy	1	MC114	141 2 3529 30300	Spacer, Planet Gear	1
MC51	141 2 8519 93200	Spring, Idler Base	1	MC115	141 2 4539 08000	Washer	3
MC52	141 2 3529 26800	Spacer	1	MC116	141 2 7439 23800	Shut Off Link Arm	1
MC53	141 2 4539 18100	Washer	5	MC117	141 2 5519 40900	Rewind Gear	1
MC54	141 2 5519 40100	Take-up Idler	1	MC118	141 2 8559 01700	Spring, Back Tension	1
MC55	141 2 4539 09200	Washer	1	MC119	141 2 4539 14900	Washer	1
MC56	141 2 5519 41000	Take-up Pulley	1	MC120	141 2 5519 36100	Gear	1
MC57	141 2 5649 17500	Shut Off Belt	1	MC121	141 2 7439 20800	Gear Select Arm	1
MC58	141 2 4539 01800	Washer	1	MC122	141 0 7439 08800	Select Arm Assy	1
MC59	141 0 5519 08300	Torque Limitter Assy	1	MC123	141 2 3529 27000	Spacer, Select Arm	1
MC60	141 0 5559 06300	Idler Arm Assy	1	MC124	141 2 8549 05200	Spring, Select Cam	1
MC61	141 2 5519 36000	Wind Gear	1	MC125	141 0 7439 08700	Select Link Assy	1
MC62	141 2 8549 07900	Spring, Switch Lever	2	MC126	141 2 8549 08500	Spring, Pause Arm	1
MC63	141 2 8549 05300	Spring, Shut Off Rack	1	MC127	141 2 7439 24800	Pause Lock Plate	1

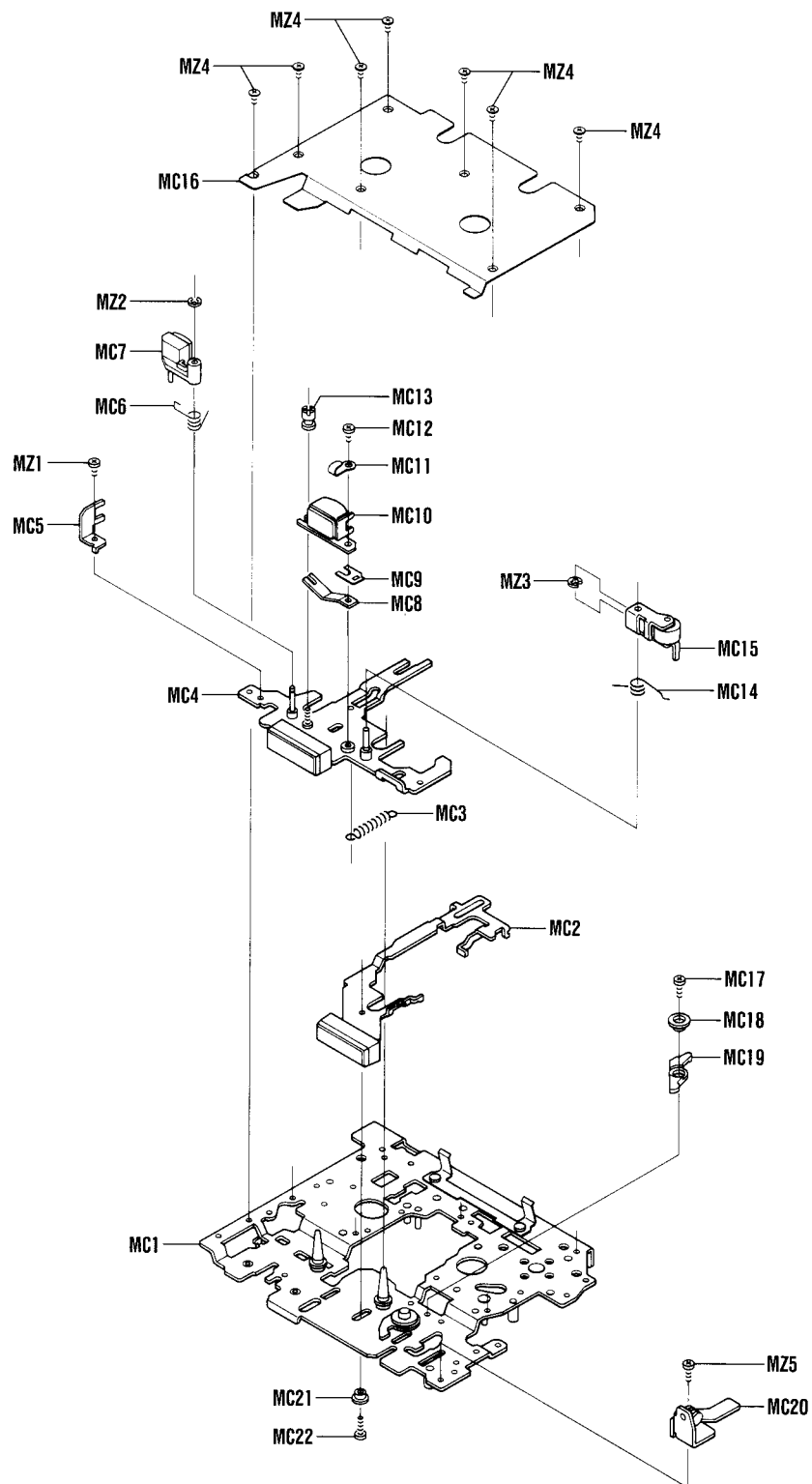
MECHANISM PARTS LIST (Continued)

Ref. No.	Parts No.	Description	Q'ty
MC128	141 2 8529 04500	Spring, Pause	1
MC129	141 2 5519 40800	Supply Gear	1
MC130	141 0 7439 10100	Review Link Assy	1
MC131	141 2 7319 48100	Switch Lever	1
MC132	141 2 8549 07800	Spring, Pause Lever	1
MC133	141 2 7439 21300	Interlock	1
MC134	141 2 3529 29800	Spacer, Interlock	1
MC135	141 2 8529 04400	Spring, Interlock	1
MC136	141 2 4219 23500	Screw +M1.7x4.0	1
MC137	141 0 8429 01400	Record Plate Assy	1
MC138	141 2 8549 05000	Spring, Record Plate	1
MC139	141 2 4539 09401	Washer	2
MC140	141 0 5349 01600	Reel Spindle Assy	1
MC141	141 0 5349 01500	Reel Spindle Assy	1
MC142	4 2319 75160	FM Mode Switch P.C.B. Assy (See PCB6)	1
MC143	4 5279 70906	Motor Assy (See PCB3)	1
MZ1	127 3 1317 01613	PI Screw-1, Pan Hd. +M1.7x1.6	1
MZ2	112 3 1301 20082	E Ring M1.2	8
MZ3	112 3 1301 50082	E Ring M1.5	11
MZ4	127 3 1214 01418	PI Screw-1, Flat Hd. +M1.4x1.4	7
MZ5	127 3 1317 02513	PI Screw-1, Pan Hd. +M1.7x2.5	3
MZ6	110 3 1101 70081	Sm. Round Washer M1.7	2
MZ7	128 3 1317 05018	PI Screw-3, Pan Hd. +M1.7x5.0	1
MZ8	128 3 1317 03013	PI Screw-3, Pan Hd. +M1.7x3.0	2
MZ9	128 3 1317 02513	PI Screw-3, Pan Hd. +M1.7x2.5	1
MZ10	101 3 1302 00311	Screw, Pan Hd. +M2.0x3	1
MZ11	127 3 1317 03013	PI Screw-1, Pan Hd. +M1.7x3.0	3
MZ12	127 3 1314 03013	PI Screw-1, Pan Hd. +M1.4x3.0	4
MZ13	127 3 1314 02513	PI Screw-1, Pan Hd. +M1.4x2.5	5
MZ14	127 3 1214 03013	PI Screw-1, Flat Hd. +M1.4x3.0	4
MZ15	128 3 1314 03018	PI Screw-3, Pan Hd. +M1.4x3.0	2
MZ16	127 3 1314 03513	PI Screw-1, Pan Hd. +M1.4x3.5	1
MZ17	101 3 1302 60411	Screw, Pan Hd. +M2.6x4	1
MZ18	127 3 1314 01613	PI Screw-1, Pan Hd. +M1.4x1.6	3
MZ19	110 3 1102 00013	Sm. Round Washer M2.0	2

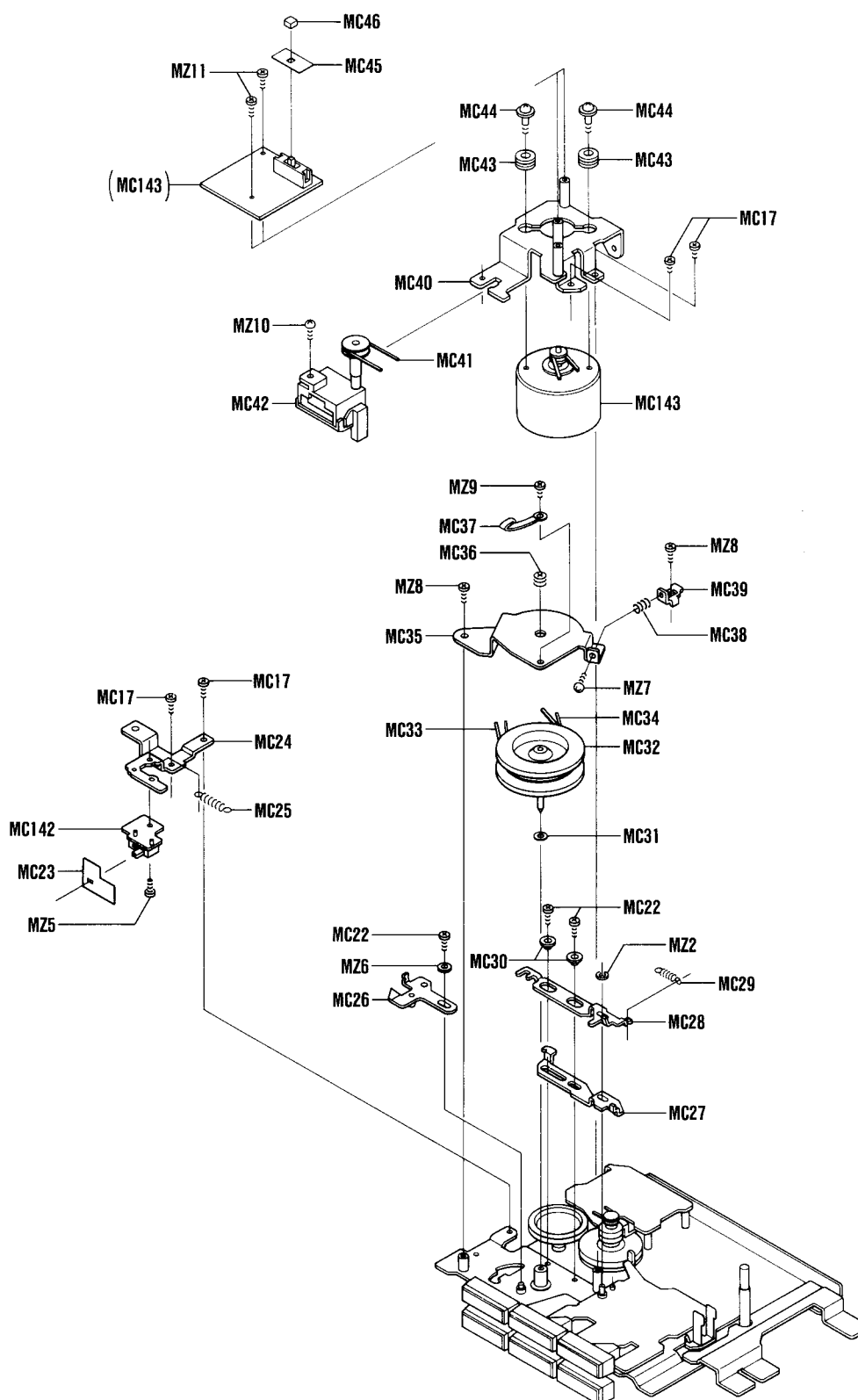
NOTES:

- Parts order must contain Model Number, Part Number and Description.
- Ordering quantity of screws and resistors must be multiple of 10 pcs.

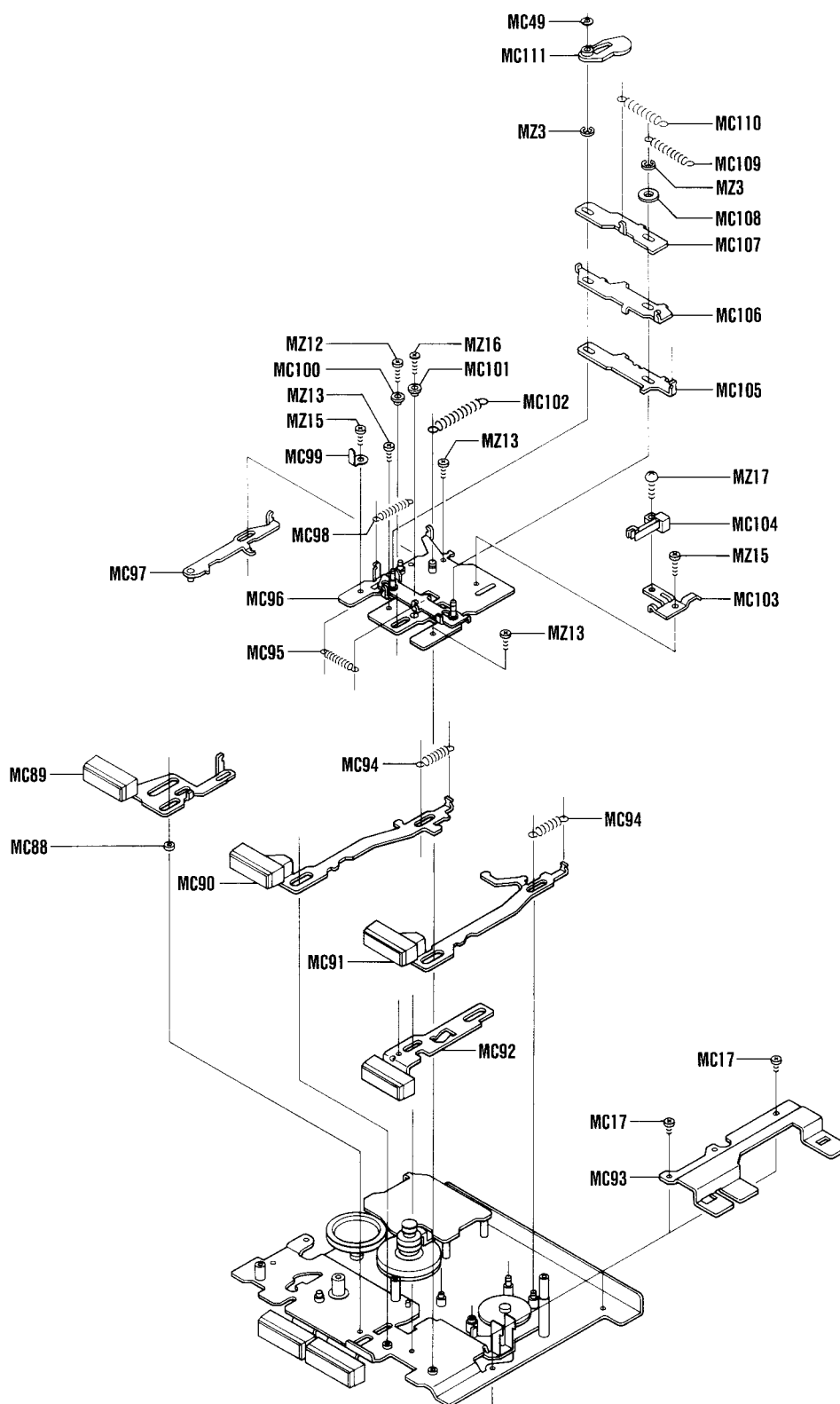
MECHANISM EXPLODED VIEW (Continued)



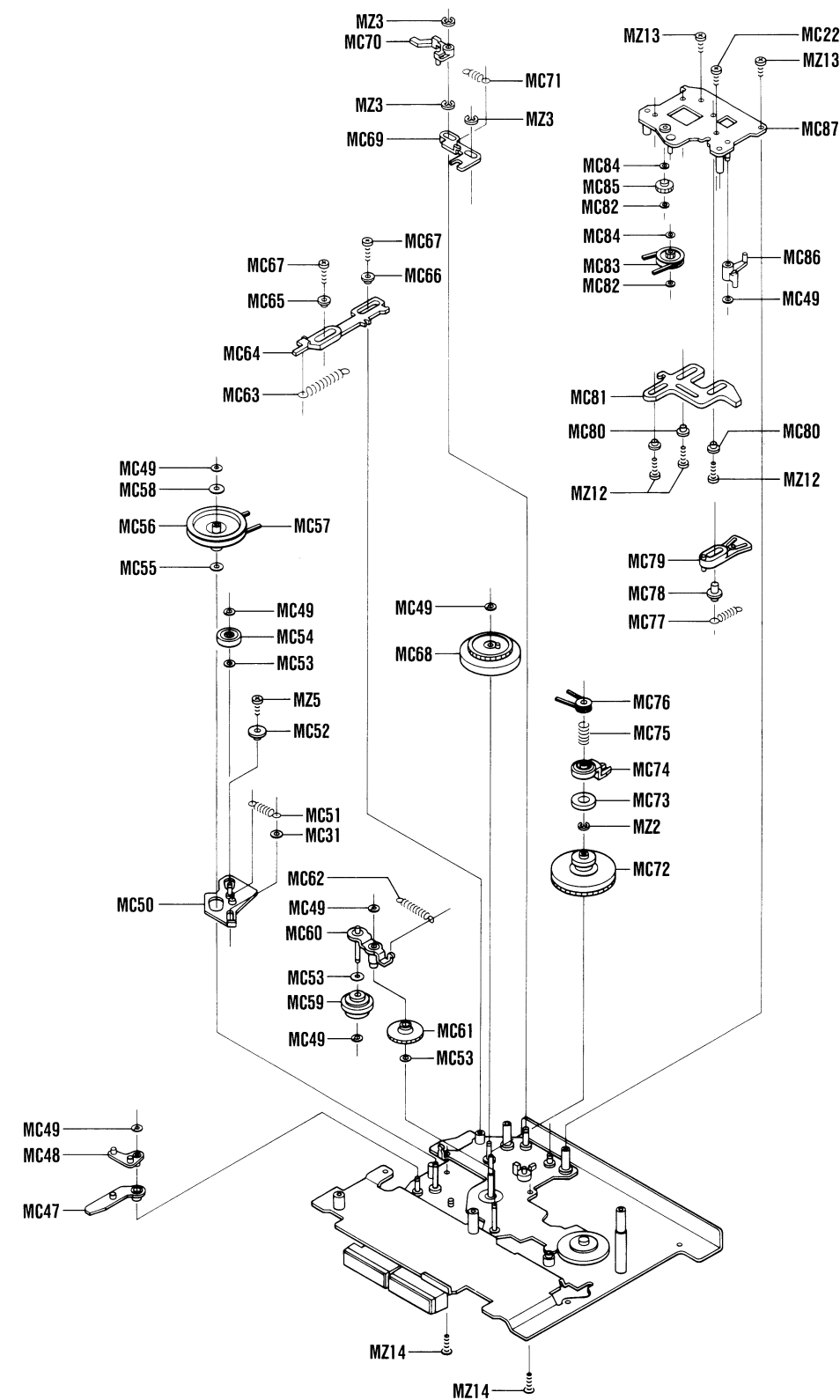
MECHANISM EXPLODED VIEW (Continued)



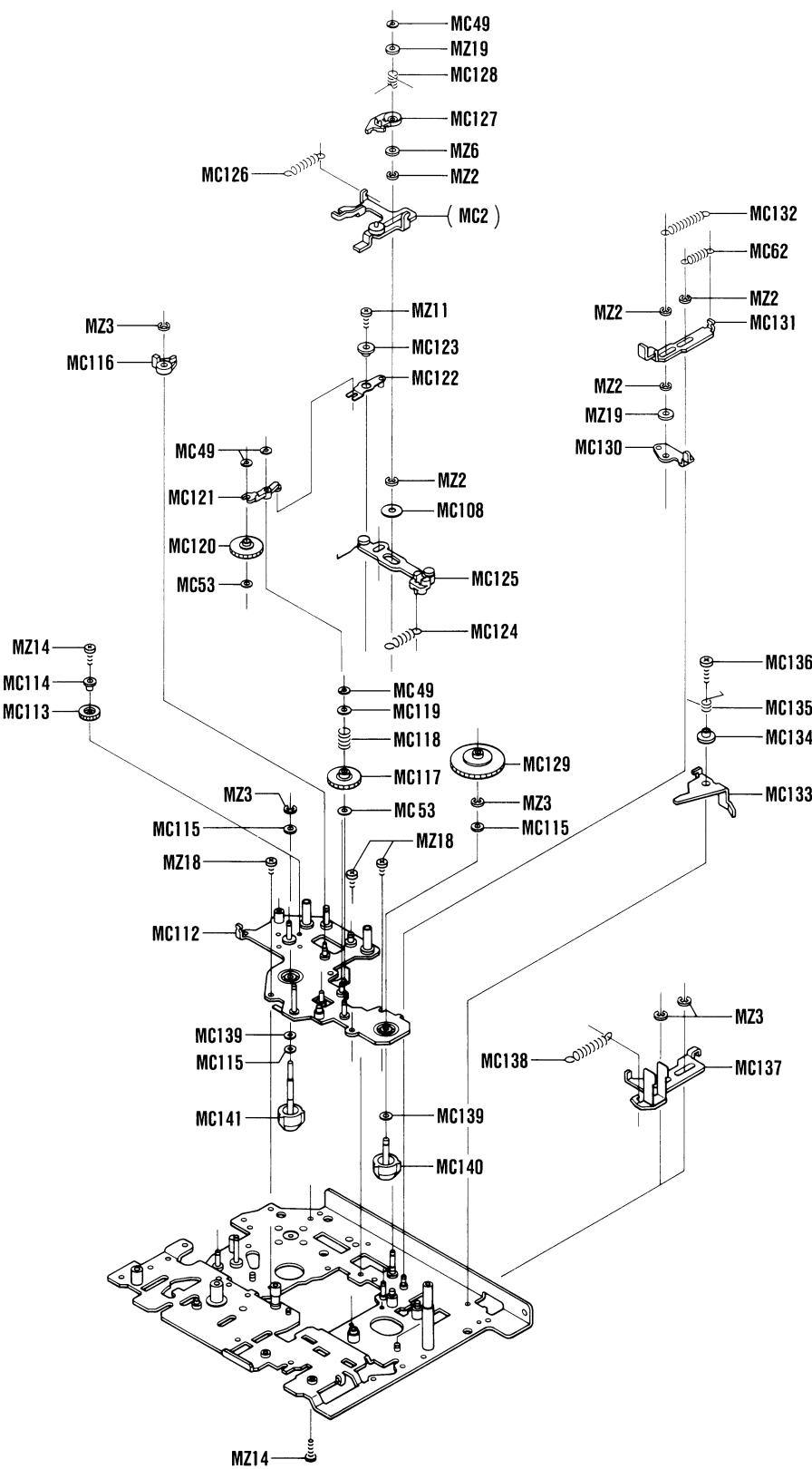
MECHANISM EXPLODED VIEW (Continued)



MECHANISM EXPLODED VIEW (Continued)



MECHANISM EXPLODED VIEW (Continued)



P.C.BOARD PARTS LIST

Ref. No.	Parts No.	Description	Q'ty	Ref. No.	Parts No.	Description	Q'ty
RADIO TUNER P.C.B. ASSY				C30	C14 7 3250 KE00C	Boundary	0.047μF 25V ±10% 1
PCB1	4 1259 71611	Radio Tuner P.C.B. Assy	1	C31	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1
141	2 3229 35600	Shield Plate, Tuner	1	C32	CD1 0 6100 0001V	Electrolytic	10μF 10V 1
141	2 3229 35700	Shield Plate, IC	1	C33	CD1 0 7100 0001V	Electrolytic	100μF 10V 1
141	2 4219 10600	Screw	2	C34	CC5 0 A500 DD00C	Ceramic	5pF 50V ±0.5pF 1
141	2 4729 05000	Staple, 5mm	6	C35	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1
	4 2369 70740	RT Pin	11	C36	CD4 7 6100 0001V	Electrolytic	47μF 10V 1
PVC1	4 2249 70540	Variable Condenser	1	C37	CM47 3500 K00SV	Mylar	0.047μF 50V ±10% 1
S5	4 2319 74411	Slide Switch (Band Select)	1	C38	CS1 0 2500 J000V	Polystyroul	0.001μF 50V ±5% 1
VR1	4 2229 73500	Volume Control (A-20kΩ /Left)	1	C39	CD4 7 4500 0001V	Electrolytic	0.47μF 50V 1
P1	4 2229 73036	Potentiometer (B-10kΩ)	1	C40	CM8 2 1500 K00SV	Mylar	820pF 50V ±10% 1
BPF1	4 2539 71021	Band Pass Filter	1	C41	CD1 0 5100 0001V	Electrolytic	1μF 10V 1
L001	4 2599 70601	RF Coil	1	C42	CD4 7 4500 0001V	Electrolytic	0.47μF 50V 1
L002	4 2589 71611	OSC Coil FM	1	C43	C16 8 2250 KE00C	Boundary	0.0068μF 25V ±10% 1
L3	4 2579 70971	Bar Antenna	1	C44	C16 8 2250 KE00C	Boundary	0.0068μF 25V ±10% 1
T1	4 2569 71283	IFT	1	C45	CD4 7 4500 0001V	Electrolytic	0.47μF 50V 1
T2	4 2569 70854	IFT	1	C46	CD4 7 4500 0001V	Electrolytic	0.47μF 50V 1
T3	4 2569 71340	IFT FM	1	C47	C16 8 2250 KE00C	Boundary	0.0068μF 25V ±10% 1
T4	4 2569 71350	IFT AM	1	C48	C16 8 2250 KE00C	Boundary	0.0068μF 25V ±10% 1
T5	4 2589 70514	OSC Trans	1	C49	C11 2 3250 KE00C	Boundary	0.012μF 25V ±10% 1
T6	4 2569 71360	Trap 19kHz	1	C50	C11 2 3250 KE00C	Boundary	0.012μF 25V ±10% 1
T7	4 2569 71360	Trap 19kHz	1	C51	CD1 0 5100 0001V	Electrolytic	1μF 10V 1
CF1	4 2539 70881	Ceramic Filter	1	C52	CC1 8 0500 JCH0C	Ceramic	18pF 50V ±5% 1
CF2	4 2539 70681	Mechanical Filter	1	R1	RP1 0 5121 JH000	Pretty Carbon	1MΩ 1/8W ±5% 1
D1	4 2029 71440	Diode, 1SS95	1	R2	RP5 6 2121 JH000	Pretty Carbon	5.6kΩ 1/8W ±5% 1
D2	4 2029 71440	Diode, 1SS95	1	R3	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
D3	4 2029 70790	Diode, ITT410	1	R4	RP1 0 5121 JH000	Pretty Carbon	1MΩ 1/8W ±5% 1
D4	4 2029 71440	Diode, 1SS95	1	R5	RP5 6 2121 JH000	Pretty Carbon	5.6kΩ 1/8W ±5% 1
Q1	4 2039 70380	Transistor, 2SC1674	1	R6	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
Q2	4 2039 70380	Transistor, 2SC1674	1	R7	RP1 0 5121 JH000	Pretty Carbon	1MΩ 1/8W ±5% 1
Q3	4 2039 70460	Transistor, 2SC1675	1	R8	RP3 3 1121 JH000	Pretty Carbon	330Ω 1/8W ±5% 1
Q4	4 2039 70460	Transistor, 2SC1675	1	R9	RP2 2 2121 JH000	Pretty Carbon	2.2kΩ 1/8W ±5% 1
Q5	4 2039 70431	Transistor, 2SC 1815	1	R10	RP3 3 4121 JH000	Pretty Carbon	330kΩ 1/8W ±5% 1
IC1	4 2069 71530	IC, AN7223	1	R11	RP1 0 3121 JH000	Pretty Carbon	10kΩ 1/8W ±5% 1
IC2	206 5 0483 36110	IC, LA3361	1	R12	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
C1	CC1 0 1500 KD00C	Ceramic	100pF 50V ±10% 1	R13	RP1 0 5121 JH000	Pretty Carbon	1MΩ 1/8W ±5% 1
C2	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R14	RP3 3 1121 JH000	Pretty Carbon	330Ω 1/8W ±5% 1
C3	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R15	RP5 6 2121 JH000	Pretty Carbon	5.6kΩ 1/8W ±5% 1
C4	CC2 4 0500 JD00C	Ceramic	24pF 50V ±5% 1	R16	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
C5	CC3 0 A500 CD00C	Ceramic	3pF 50V ±0.2pF 1	R17	RP5 6 4121 JH000	Pretty Carbon	560kΩ 1/8W ±5% 1
C6	CC2 0 A500 CCH0C	Ceramic	2pF 50V ±0.2pF 1	R18	RP5 6 1121 JH000	Pretty Carbon	560Ω 1/8W ±5% 1
C7	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R19	RP1 8 2121 JH000	Pretty Carbon	1.8kΩ 1/8W ±5% 1
C8	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R20	RP2 2 0121 JH000	Pretty Carbon	22Ω 1/8W ±5% 1
C9	CC3 3 0500 JCH0C	Ceramic	33pF 50V ±5% 1	R21	RP5 6 0121 JH000	Pretty Carbon	56Ω 1/8W ±5% 1
C10	CC2 2 0500 JCH0C	Ceramic	22pF 50V ±5% 1	R22	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
C11	CC1 5 0500 JCH0C	Ceramic	15pF 50V ±5% 1	R23	RP6 8 2121 JH000	Pretty Carbon	6.8kΩ 1/8W ±5% 1
C12	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R24	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
C13	CC3 0 A500 CCH0C	Ceramic	3pF 50V ±0.2pF 1	R25	RP3 3 2121 JH000	Pretty Carbon	3.3kΩ 1/8W ±5% 1
C14	C11 0 3250 KE00C	Boundary	0.01μF 25V ±10% 1	R26	RP3 3 2121 JH000	Pretty Carbon	3.3kΩ 1/8W ±5% 1
C15	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R27	RP1 0 2121 JH000	Pretty Carbon	1kΩ 1/8W ±5% 1
C16	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R28	RP1 0 0121 JH000	Pretty Carbon	10Ω 1/8W ±5% 1
C17	CC1 0 2500 KE00C	Ceramic	0.001μF 50V ±10% 1	R29	RP6 8 1121 JH000	Pretty Carbon	680Ω 1/8W ±5% 1
C18	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R30	RP6 8 2121 JH000	Pretty Carbon	6.8kΩ 1/8W ±5% 1
C19	C12 2 3250 KE00C	Boundary	0.022μF 25V ±10% 1	R31	RP6 8 2121 JH000	Pretty Carbon	6.8kΩ 1/8W ±5% 1
C20	CD1 0 7100 0001V	Electrolytic	100μF 10V 1	AMPLIFIER P.C.B. ASSY			
C21	CB1 0 6100 0000V	None-polar	10μF 10V 1	PCB2	4 1329 77450	Amplifier P.C.B. Assy	1
C22	CD4 7 5250 0001V	Electrolytic	4.7μF 25V 1	141	2 2449 31100	Sheet	1
C23	C14 7 3250 KE00C	Boundary	0.047μF 25V ±10% 1		4 2439 71630	Lead	1
C24	C14 7 3250 KE00C	Boundary	0.047μF 25V ±10% 1	S2	4 2319 73990	Leaf Switch (Mute)	1
C25	CD2 2 6100 0001V	Electrolytic	22μF 10V 1	S5	4 2319 71975	Slide Switch (Function)	1
C26	C11 0 3250 KE00C	Boundary	0.01μF 25V ±10% 1	S6	4 2319 75140	Slide Switch (Record/Playback)	1
C27	CD1 0 6100 0001V	Electrolytic	10μF 10V 1	J1	4 2359 71782	1P Jack (Mike, Left)	1
C28	CD4 7 6100 0001V	Electrolytic	47μF 10V 1				
C29	CD3 3 7100 0001V	Electrolytic	330μF 10V 1				

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Parts No.	Description	Q'ty	Ref. No.	Parts No.	Description	Q'ty
J2	4 2359 73470	1P Jack (Mike, Right)	1	C206	CD1 0 6160 0002V	Electrolytic 10μF 16V	1
P101	4 2229 73680	Potentiometer (B-200kΩ)	1	C207	CD4 7 5250 0002V	Electrolytic 4.7μF 25V	1
P201	4 2229 73680	Potentiometer (B-200kΩ)	1	C208	CG3 3 2500 KH00B	Chip 0.0033μF 50V ±10%	1
L101	4 2559 70031	Coil (33mH)	1	C209	CG5 0 A500 CD00B	Chip 50pF 50V ±0.2pF	1
L201	4 2559 70031	Coil (33mH)	1	C210	CG3 3 1500 KH00B	Chip 330pF 50V ±10%	1
P202	4 2229 73630	Potentiometer (B-50kΩ)	1	C211	CM1 5 3500 K00SV	Mylar 0.015μF 50V ±10%	1
T301	4 2589 71880	OSC Trans	1	C212	CG8 2 2500 KH00B	Chip 0.0082μF 50V ±10%	1
TH301	204 5 9000 00090	Thermister, SDT 09	1	C214	CG1 2 2500 KH00B	Chip 0.0012μF 50V ±10%	1
D101	205 5 9040 44210	Diode, DS 442	1	C216	CG3 3 1500 KH00A	Chip 330pF 50V ±10%	1
D102	202 5 9110 18820	Diode, 1S 188	1	C217	CD4 7 5250 0002V	Electrolytic 4.7μF 25V	1
D103	202 5 9110 18820	Diode, 1S 188	1	C218	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1
D201	205 5 9040 44210	Diode, DS 442	1	C219	CD1 0 6160 0002V	Electrolytic 10μF 16V	1
D202	202 5 9110 18820	Diode, 1S 188	1	C220	CG4 7 3500 ZI00B	Chip 0.047μF 50V +80,-20%	1
D304	205 5 9040 44210	Diode, DS 442	1	C221	CG1 5 3500 KH00B	Chip 0.015μF 50V ±10%	1
D305	202 5 2470 13540	Diode, DS135D	1	C222	CD1 0 5500 0002V	Electrolytic 1μF 50V	1
D306	202 5 2470 13540	Diode, DS135D	1	C223	CG4 7 2500 KH00B	Chip 0.0047μF 50V ±10%	1
D307	202 5 2470 13540	Diode, DS135D	1	C224	CD1 0 740A 0002V	Electrolytic 100μF 4V	1
Q101	203 5 4422 81215	Transistor, 2SC 2812	1	C225	CD1 0 6160 0001V	Electrolytic 10μF 16V	1
Q102	203 5 4422 81215	Transistor, 2SC 2812	1	C226	CD1 0 763A 0001V	Electrolytic 100μF 6.3V	1
Q103	203 5 4451 04887	Transistor, 2SD 1048	1	C227	4 2239 70510	Capacitor 470μF 6.3V	1
Q201	203 5 4422 81215	Transistor, 2SC 2812	1	C228	CG3 3 1500 KH00B	Chip 330pF 50V ±10%	1
Q202	203 5 4422 81215	Transistor, 2SC 2812	1	C229	CM1 5 4500 K00MV	Mylar 0.15μF 50V ±10%	1
Q203	203 5 4451 04887	Transistor, 2SD 1048	1	C230	CG8 2 1500 KH00B	Chip 820pF 50V ±10%	1
Q204	203 5 4422 81215	Transistor, 2SC 2812	1	C231	CG1 0 3500 KH00B	Chip 0.01μF 50V ±10%	1
Q205	203 5 4401 17915	Transistor, 2SA 1179	1	C301	C14 7 3120 MF00C	Boundary 0.047μF 12V ±20%	1
Q301	203 5 4422 81215	Transistor, 2SC 2812	1	C302	CG3 3 3250 MH00A	Chip 0.033μF 25V ±20%	1
Q302	203 5 5100 53670	Transistor, 2SC 536	1	C303	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1
Q303	203 5 4422 81215	Transistor, 2SC 2812	1	C304	CD4 7 5250 0002V	Electrolytic 4.7μF 25V	1
IC101	4 2069 71420	IC, M51543	1	C305	CD1 0 5500 0002V	Electrolytic 1μF 50V	1
IC102	206 5 1314 18010	IC, LA4180	1	C306	CD2 2 6100 0001V	Electrolytic 22μF 10V	1
C101	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1	C308	CD3 3 5250 0002V	Electrolytic 3.3μF 25V	1
C102	CG8 2 1500 KH00B	Chip 820pF 50V ±10%	1	C309	CD1 0 6160 0002V	Electrolytic 10μF 16V	1
C103	CD4 7 5250 0002V	Electrolytic 4.7μF 25V	1	C310	CD2 2 663A 0002V	Electrolytic 22μF 6.3V	1
C104	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1	C311	CD3 3 6100 0002V	Electrolytic 33μF 10V	1
C105	CD1 0 763A 0002V	Electrolytic 100μF 6.3V	1	C312	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1
C106	CD1 0 6160 0002V	Electrolytic 10μF 16V	1	C313	CD1 0 6160 0002V	Electrolytic 10μF 16V	1
C107	CD4 7 5250 0002V	Electrolytic 4.7μF 25V	1	C314	CD2 2 663A 0002V	Electrolytic 22μF 6.3V	1
C108	CG3 3 2500 KH00B	Chip 0.0033μF 50V ±10%	1	C315	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1
C109	CG5 0 A500 CD00B	Chip 50pF 50V ±0.2pF	1	C316	CG4 7 1500 KH00B	Chip 470pF 50V ±10%	1
C110	CG3 3 1500 KH00B	Chip 330pF 50V ±10%	1	C317	CG4 7 2500 KH00B	Chip 0.0047μF 50V ±10%	1
C111	CM1 5 3500 K00SV	Mylar 0.015μF 50V ±10%	1	C318	CP1 0 2101 K000V	Polypropylen 0.001μF 100V ±10%	1
C112	CG8 2 2500 KH00B	Chip 0.0082μF 50V ±10%	1	C319	CG1 8 1500 JD00B	Chip 180pF 50V ±5%	1
C113	CD1 0 6160 0002V	Electrolytic 10μF 16V	1	C320	CG8 2 0500 JD00B	Chip 82pF 50V ±5%	1
C114	CG1 2 2500 KH00B	Chip 0.0012μF 50V ±10%	1	C321	CD4 7 7100 0001V	Electrolytic 470μF 10V	1
C116	CG3 3 1500 KH00B	Chip 330pF 50V ±10%	1	C322	CD3 3 7100 0001V	Electrolytic 330μF 10V	1
C117	CD4 7 5250 0001V	Electrolytic 4.7μF 25V	1	C323	4 2239 70510	Capacitor 470μF 6.3V	1
C118	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1	C324	4 2239 70510	Capacitor 470μF 6.3V	1
C119	CD1 0 6160 0002V	Electrolytic 10μF 16V	1	C325	4 2239 70510	Capacitor 470μF 6.3V	1
C120	CG4 7 3500 ZI00B	Chip 0.047μF 50V +80,-20%	1	C326	CD1 0 6160 0002V	Electrolytic 10μF 16V	1
C121	CG1 5 3500 KH00B	Chip 0.015μF 50V ±10%	1	C327	CD4 7 663A 0002V	Electrolytic 47μF 6.3V	1
C122	CD1 0 5500 0002V	Electrolytic 1μF 50V	1	C328	CC1 5 2500 KE00C	Ceramic 0.0015μF 50V ±10%	1
C123	CG4 7 2500 KH00B	Chip 0.0047μF 50V ±10%	1	C329	4 2239 70510	Capacitor 470μF 6.3V	1
C124	CD1 0 740A 0002V	Electrolytic 100μF 4V	1	C340	CD2 2 663A 0002V	Electrolytic 22μF 6.3V	1
C126	CD4 7 640A 0002V	Electrolytic 47μF 4V	1	R102	RG2 2 2121 JA000	Chip 2.2kΩ 1/8W ±5%	1
C127	CD2 2 740A 0002V	Electrolytic 220μF 4V	1	R104	RG1 0 5121 JA000	Chip 1MΩ 1/8W ±5%	1
C128	CG3 3 1500 KH00B	Chip 330pF 50V ±10%	1	R121	RG5 6 0121 JA000	Chip 56Ω 1/8W ±5%	1
C129	CM1 5 4500 K00MV	Mylar 0.15μF 50V ±10%	1	R124	RG5 6 1121 JA000	Chip 560Ω 1/8W ±5%	1
C130	CG8 2 1500 KH00B	Chip 820pF 50V ±10%	1	R125	RG6 8 1121 JA000	Chip 680Ω 1/8W ±5%	1
C131	CG1 0 3500 KH00B	Chip 0.01μF 50V ±10%	1	R202	RG2 2 2121 JA000	Chip 2.2kΩ 1/8W ±5%	1
C201	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1	R204	RG1 0 5121 JA000	Chip 1MΩ 1/8W ±5%	1
C202	CG8 2 1500 KH00B	Chip 820pF 50V ±10%	1	R224	RG5 6 1121 JA000	Chip 560Ω 1/8W ±5%	1
C203	CD4 7 5250 0001V	Electrolytic 4.7μF 25V	1	R304	RG4 7 4121 JA000	Chip 470kΩ 1/8W ±5%	1
C204	CG1 0 2500 KH00B	Chip 0.001μF 50V ±10%	1	R308	RG2 2 5121 JA000	Chip 2.2MΩ 1/8W ±5%	1
C205	CD1 0 763A 0001V	Electrolytic 100μF 6.3V	1	R316	RG1 0 0121 JA000	Chip 10Ω 1/8W ±5%	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Parts No.				Description	Q'ty	
R319	RG1	2	2121	JA000	Chip	1.2k Ω 1/8W $\pm$ 5%	1
R321	RG6	8	1121	JA000	Chip	680 Ω 1/8W $\pm$ 5%	1
R322	RG3	3	1121	JA000	Chip	330 Ω 1/8W $\pm$ 5%	1
R326	RG1	0	0121	JA000	Chip	10 Ω 1/8W $\pm$ 5%	1
R327	RG8	2	0121	JA000	Chip	82 Ω 1/8W $\pm$ 5%	1
R329	RG6	8	0121	JA000	Chip	68 Ω 1/8W $\pm$ 5%	1

MOTOR ASSY

PCB3	4	5279	70906	Motor Assy				1
	4	2869	70600	Motor Governor P.C.B. Assy				1
M1	4	5279	70902	Motor				1
S6	4	2319	75180	Slide Switch (Beat Cancel)				1
P801	4	2229	73510	Potentiometer (B-5k Ω)				1
L801	4	2539	70650	Choke Coil (3.3 μ H)				1
L802	4	2539	70650	Choke Coil (3.3 μ H)				1
TH801	204	5	9000	05000	Thermister, SDT 500			1
IC801	206	5	1555	51220	IC, LA5512-B			1
C801	C12	2	3160	XC00R	Boundary	0.022 μ F	16V	+40, -20%
C802	CD1	0	5500	0001V	Electrolytic	1 μ F	50V	
R801	4	2219	70230		Resistor, 200 Ω (1/4W)			1
R802	RD2	7	2251	JS000	Carbon	2.7k Ω	1/4W	$\pm 5\%$
R803	RD1	0	3251	JS000	Carbon	10k Ω	1/4W	$\pm 5\%$
R804	RD4	7	2251	JS000	Carbon	4.7k Ω	1/4W	$\pm 5\%$
R805	RD5	6	1251	JS000	Carbon	560 Ω	1/4W	$\pm 5\%$

LED INDICATOR P.C.B. ASSY

PCB4	4	2029	71780	LED Indicator P.C.B. Assy	1
	4	2269	36080	PCB, LED	1
D301	4	2029	71630	LED, LN210RP (Record/Battery)	1
D302	4	2029	71630	LED, LN210RP (Tuning)	1
D303	4	2029	71770	LED, LN310GP (FM Stereo)	1

SWITCH P.C.B. ASSY

PCB5	4	2319	75170	Switch P.C.B. Assy	1
	4	2269	36090	PCB, Metal Tone	1
	4	2439	71640	Lead	1
S7	4	2319	75150	Slide Switch (Tape Select)	1
S8	4	2319	75150	Slide Switch (Tone)	1

FM MODE SWITCH P.C.B. ASSY

PCB6	4	2319	75160	FM Mode Switch P.C.B. Assy	1
	4	2269	36100	PCB, Monaural/Stereo	1
S9	4	2319	74210	Slide Switch (FM Mode)	1

HEADPHONE JACK P.C.B. ASSY

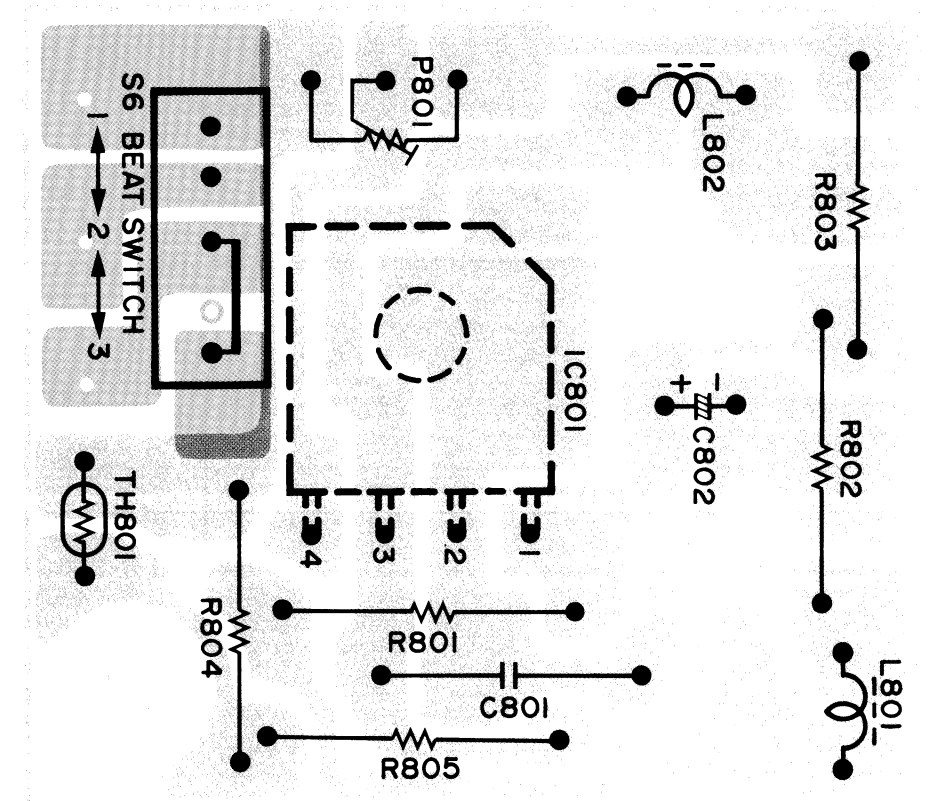
PCB7		4	2359	75490	Headphone Jack P.C.B. Assy				1
		4	2269	36070	PCB, Headphone Jack				1
		4	2439	71650	Lead				1
J7		4	2359	75500	1P Jack (Headphones)				1
R221	RP5	6	0121	JH000	Pretty Carbon	56 Ω	1/8W	$\pm 5\%$	1

EXT. POWER JACK P.C.B. ASSY

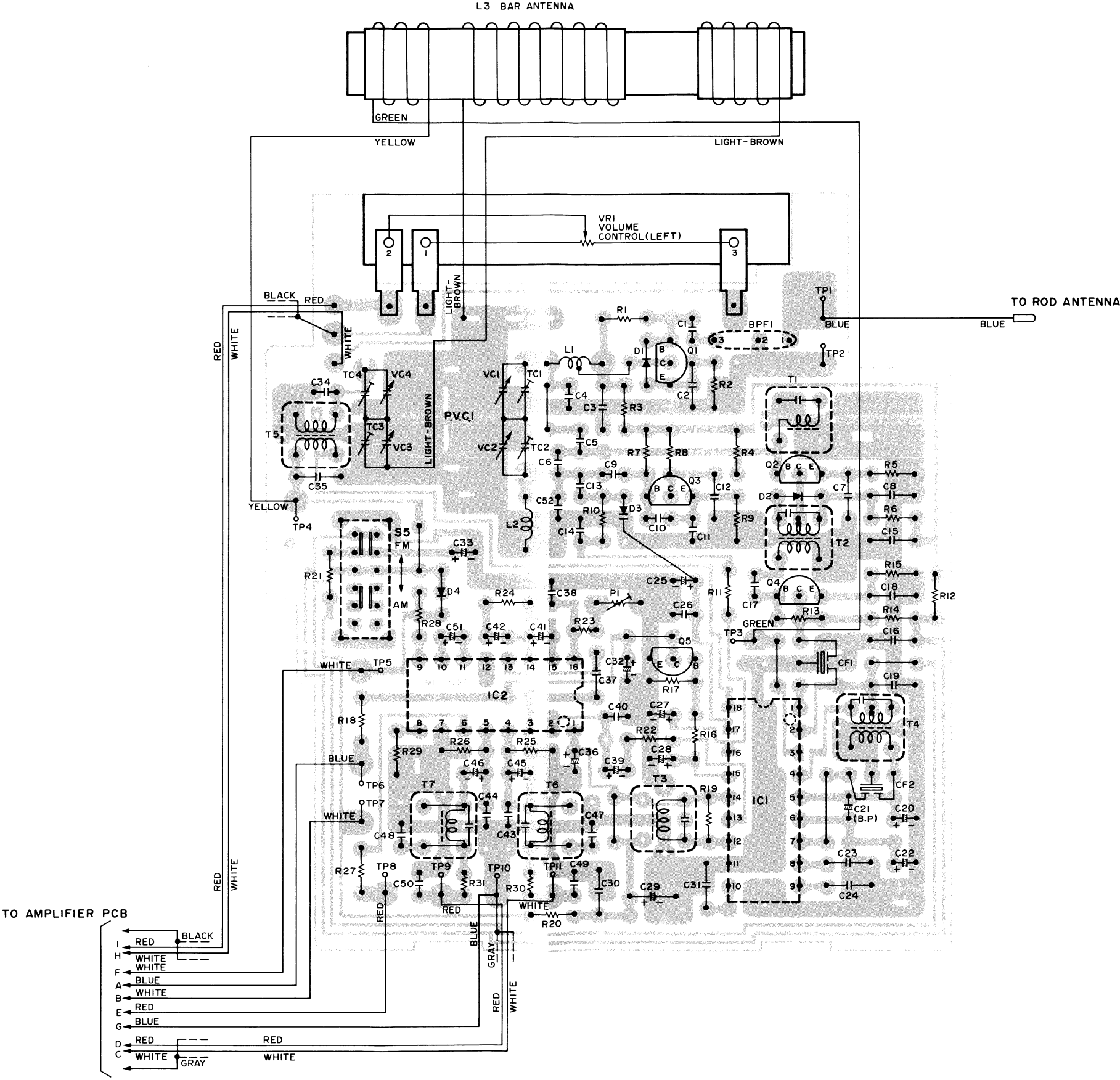
PCB8	4 2359 75481	Ext. Power Jack P.C.B. Assy	1
	4 2269 36060	PCB, Ext. Power Jack	1
J4	4 2359 72954	Ext. Power Jack	1

NOTES:

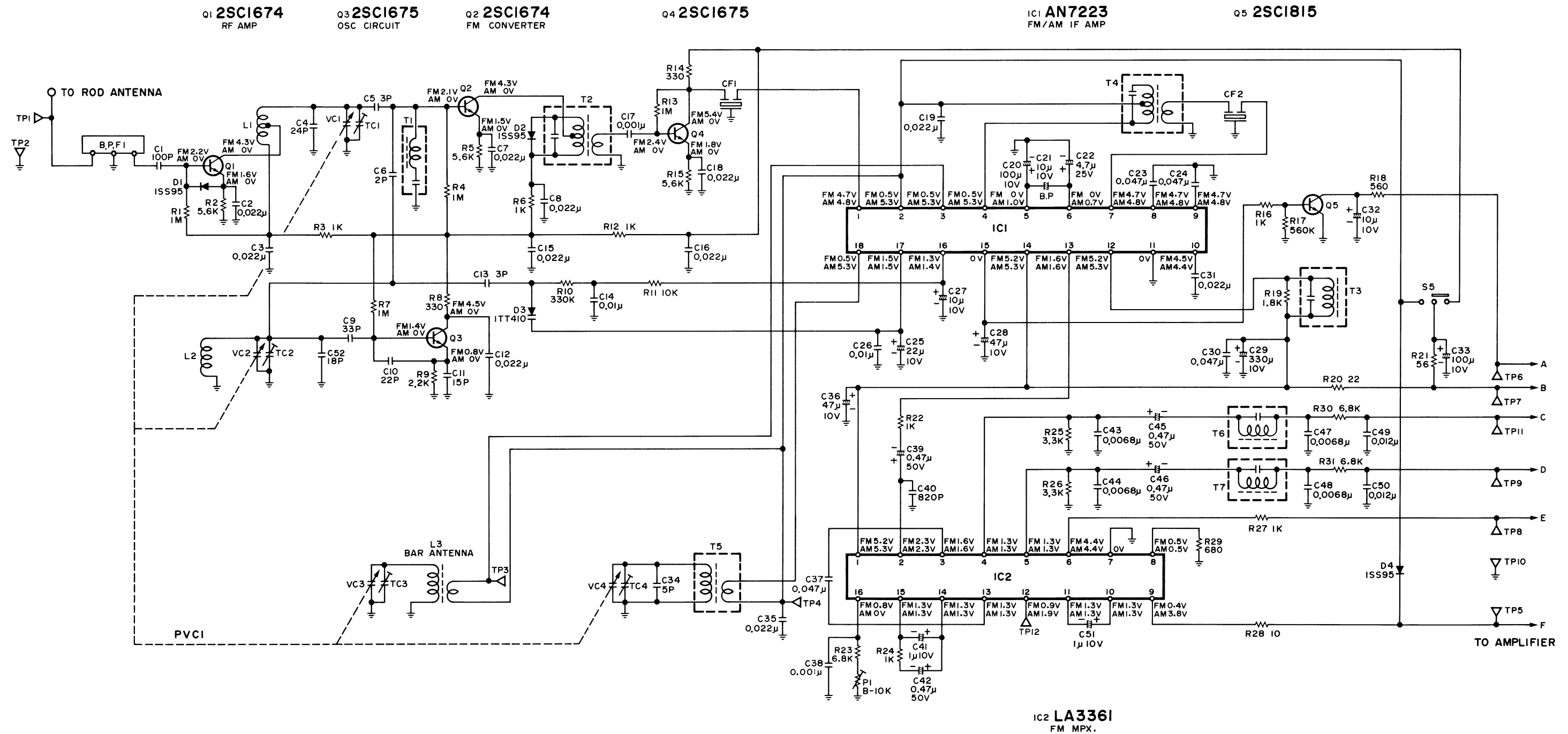
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

MOTOR GOVERNOR P.C.BOARD

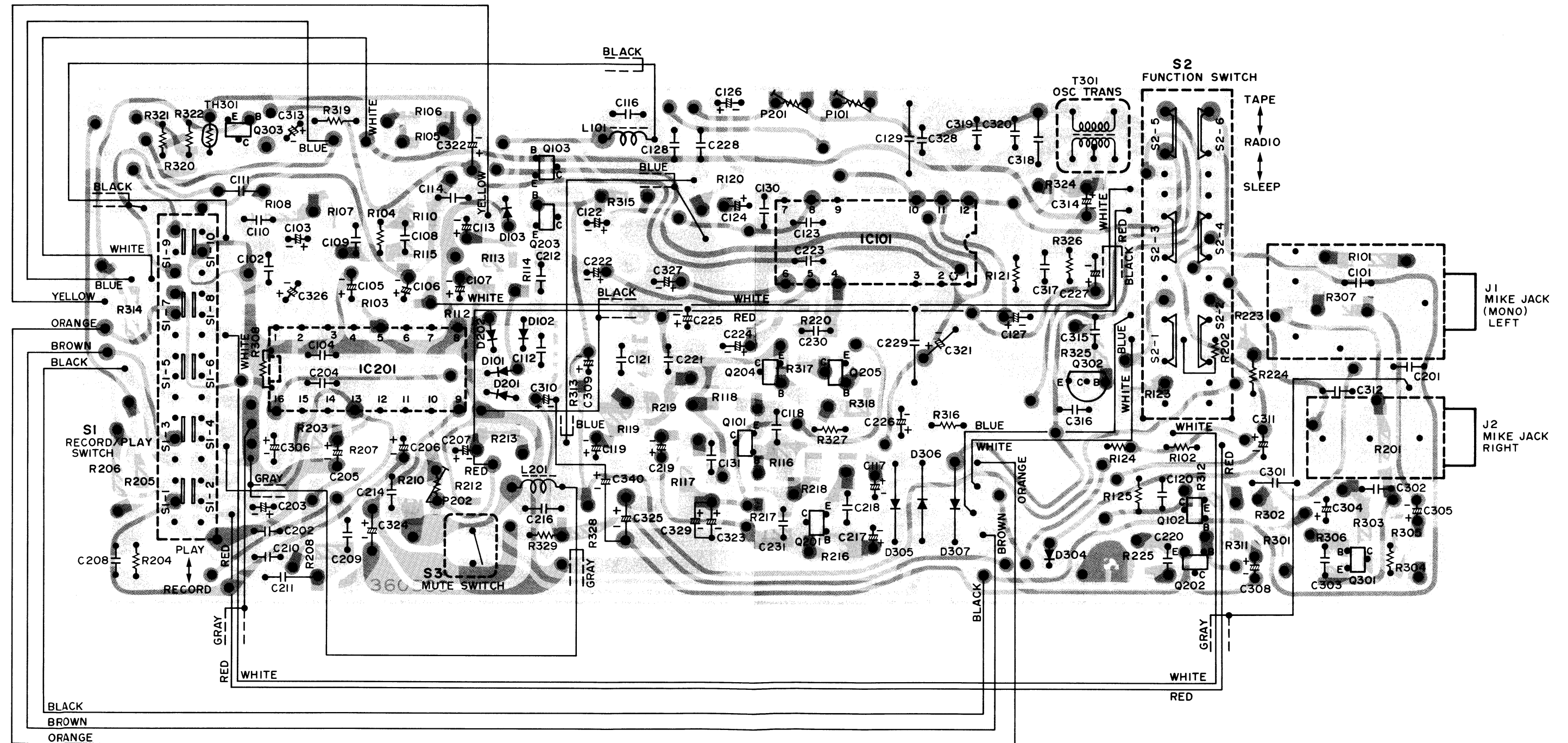
RADIO TUNNER P.C. BOARD



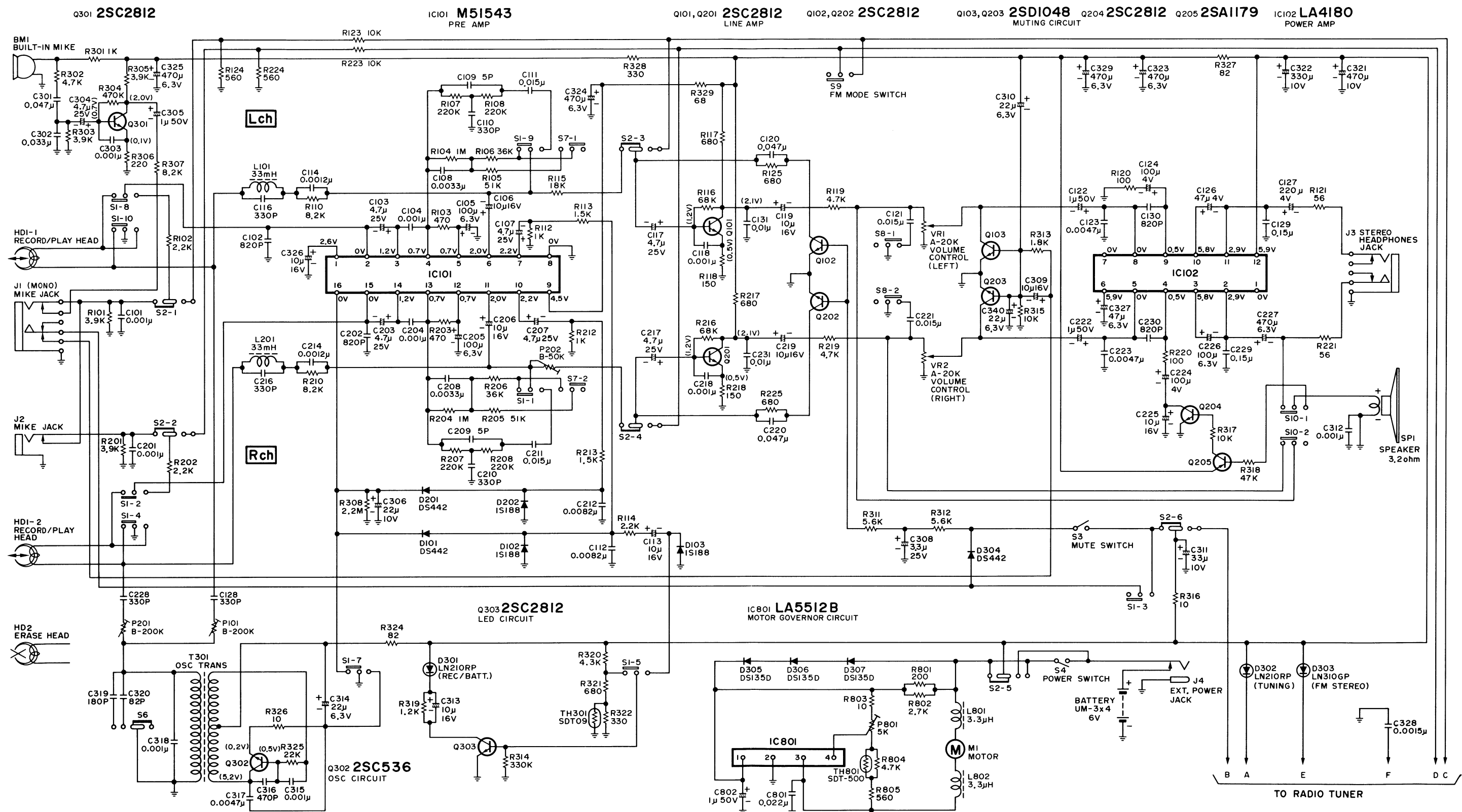
SCHEMATIC DIAGRAM (Tuner)



AMPLIFIER P.C.BOARD

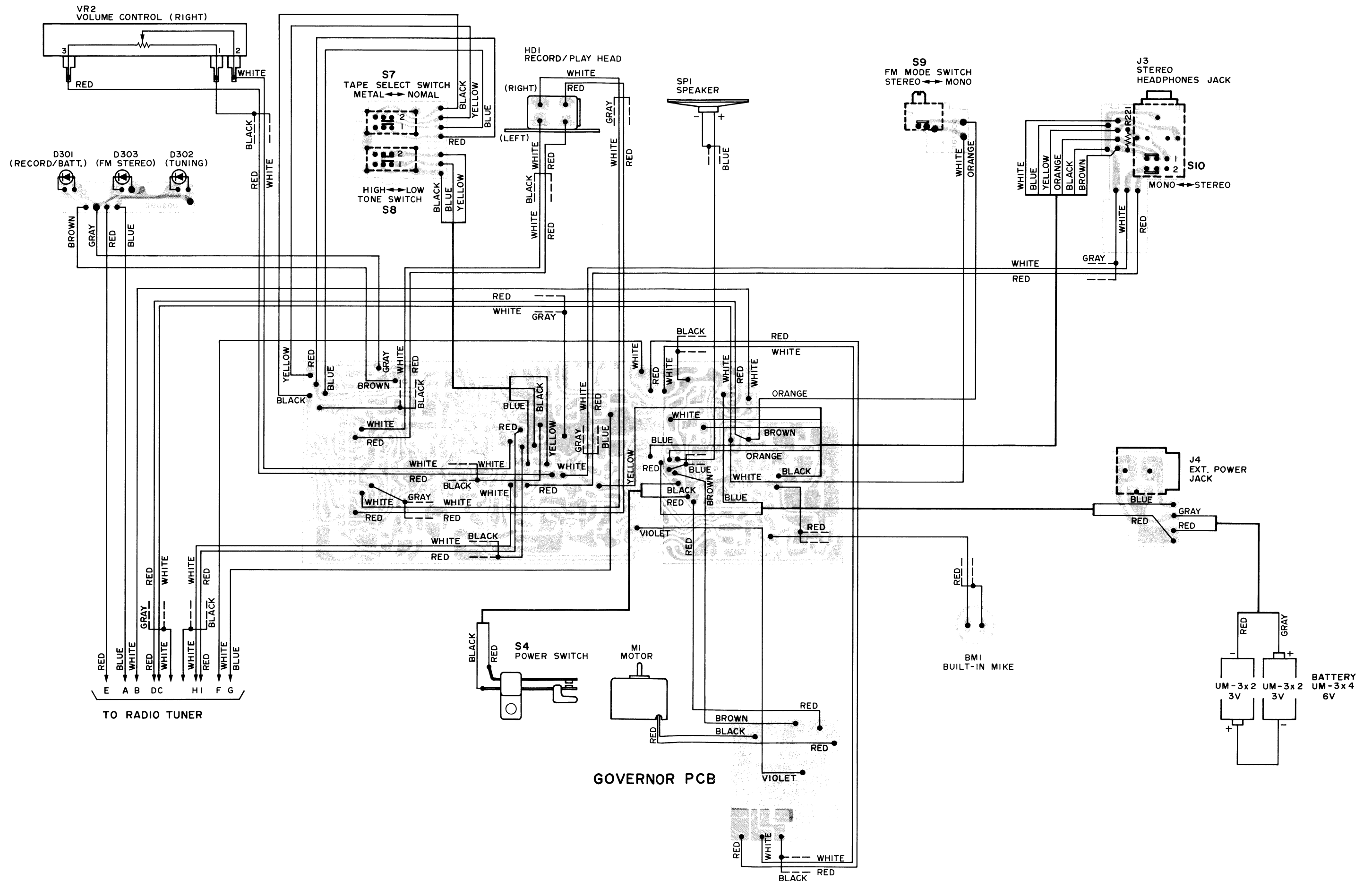


SCHEMATIC DIAGRAM (Amplifier)

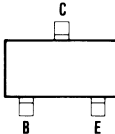


No.	Name	Position	No.	Name	Position
S1	Record/Playback Switch	PLAY	S6	Beat Cancel Switch	3
S2	Function Switch	TAPE	S7	Tape Select Switch	Normal
S3	Mute Switch	OFF	S8	Tone Switch	LOW
S4	Power Switch	OFF	S9	FM Mode Switch	Stereo
S5	Band Select Switch	FM	S10	Headphones Switch	MONO

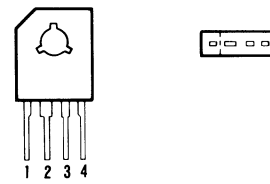
WIRING DIAGRAM



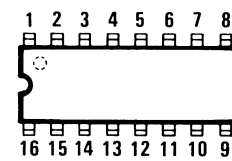
IC & TRANSISTOR LEAD IDENTIFICATION

FRONT VIEW	BOTTOM VIEW	TRANSISTOR
 B C E	 B C E	2SC1674 2SC1675 2SC1815 2SC536
 B C E	 B C E	2SC2812 2SD1048 2SA1179
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

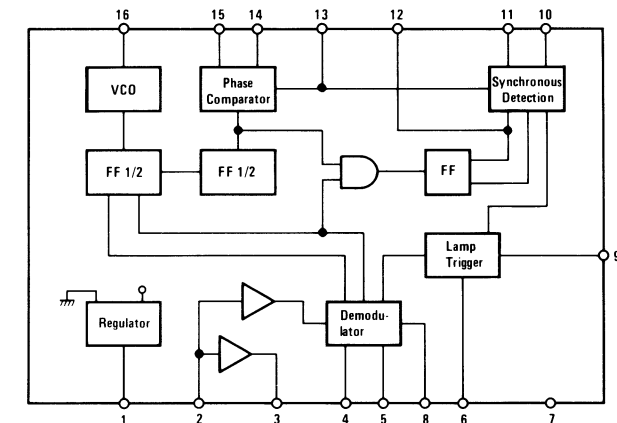
LA5512
FRONT VIEW BOTTOM VIEW



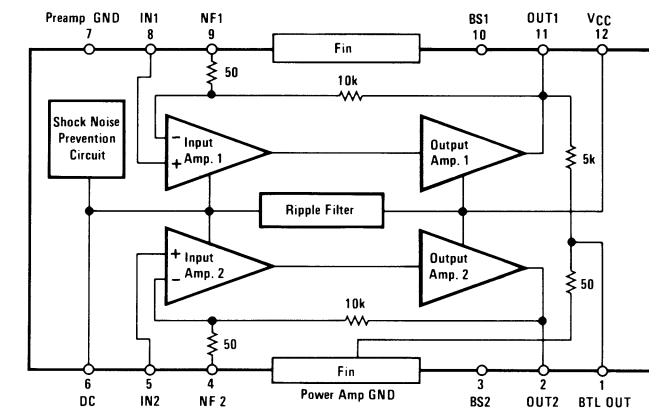
LA3361 BOTTOM VIEW



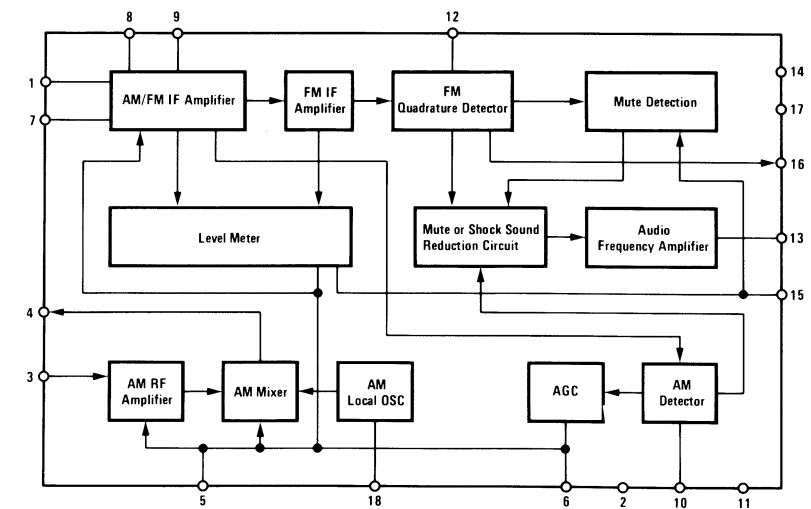
LA3361 BLOCK DIAGRAM



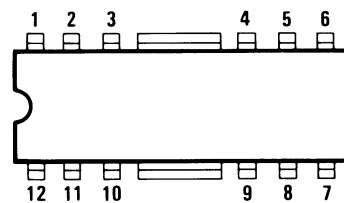
LA4180 BLOCK DIAGRAM



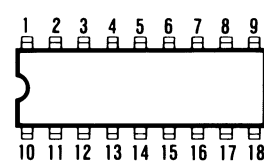
AN7223 BLOCK DIAGRAM



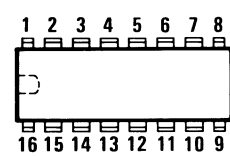
LA4180 BOTTOM VIEW



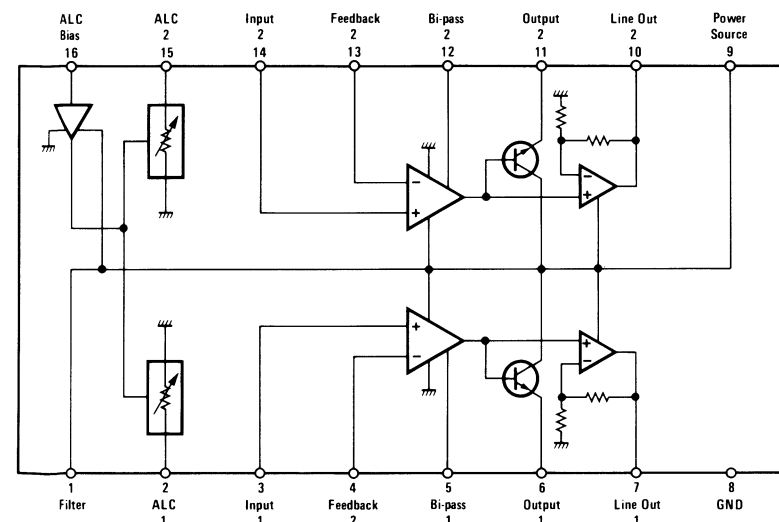
AN7223 BOTTOM VIEW



M51543 BOTTOM VIEW



M51543 BLOCK DIAGRAM



LA5512 BLOCK DIAGRAM

